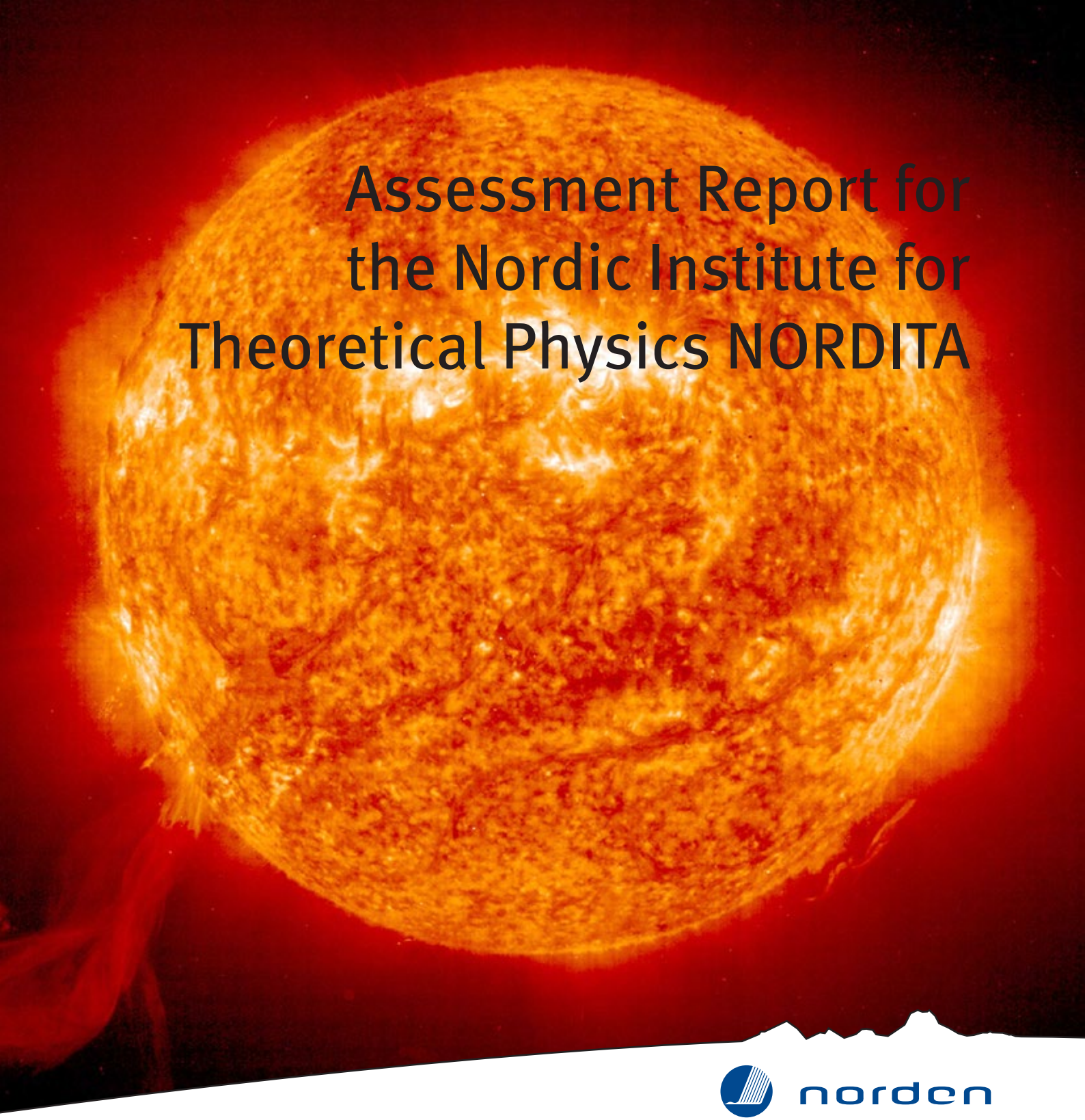


Assessment Report for the Nordic Institute for Theoretical Physics NORDITA

norden
NordForsk

NordForsk

Assessment Report for
the Nordic Institute for Theoretical Physics
NORDITA

NordForsk, 2015
Stensberggata 25
N–0170 Oslo
www.nordforsk.org
Org.nr. 971 274 255

Cover Illustration: Solar eruption. Photo: SOHO/NASA/ESA
Print: 20x by CopyCat

Assessment Report for the Nordic Institute for Theoretical Physics NORDITA

Table of Contents

Preface

The present report is one of the deliveries within a strategic analysis of Nordic university cooperation, which NordForsk is undertaking in 2015. The strategic analysis is performed in close dialogue with Nordic universities and funding agencies and aims to define relevance criteria, indicating Nordic added value, as well as funding mechanisms to be used when supporting Nordic university cooperation in research.

As a separate part of this strategic analysis, NordForsk has in the spring of 2015 organised an assessment of the scientific quality and relevance of five Nordic co-operation bodies. These are the Nordic Institute for Theoretical Physics (NORDITA), hosted by the Royal Institute of Technology KTH and Stockholm University; the Nordic Institute of Asian Studies (NIAS), hosted by the University of Copenhagen; the Nordic Volcanological Centre (NORDVULK), hosted by the University of Iceland; the Nordic Institute for Maritime Law (NIfS), hosted by the University of Oslo; and the Nordic research programme of the Sámi University College in Kautokeino (the former Nordic Sami Institute).

The inclusion of this assessment in the strategic analysis is due to the decision of the Nordic Council of Ministers to reallocate the Nordic funds of these co-operation bodies into the competitive research funding system of NordForsk. This decision is based on the overview of Nordic research cooperation and the report “Vilja till Forskning?” (2011), which recommended structural development measures within several major areas of Nordic research and research infrastructure cooperation.

I wish to thank the distinguished international Panel of Experts for performing the scientific assessment and for contributing with their valuable expertise and time, and to Gaia Consulting for facilitating the assessment.

Finally, I wish to thank the Special Advisory Group of NordForsk, which oversees the strategic analysis of Nordic university cooperation, for their ongoing work and valuable advice to NordForsk.

Gunnel Gustafsson
Director of NordForsk

1. *About the Nordic Institute for Theoretical Physics NORDITA*

The *Nordic Institute for Theoretical Physics (NORDITA)* carries out research in theoretical physics, with a focus in particular on enhancing Nordic science and serving as a platform to the world for Nordic physics.

NORDITA was founded in 1957 as the Nordic Institute for Theoretical Atomic Physics on the premises of the Niels Bohr Institute at Copenhagen University. Until 2006, NORDITA was financed by and organized directly under the Nordic Council of Ministers (NCM). Following a decision to nationalize all Nordic research institutes of the NCM, NORDITA was in 2006/2007 relocated to Stockholm, where it is jointly hosted by Stockholm University (SU) and the Royal Institute of Technology (KTH) at the AlbaNova University Centre, a joint venture of SU and KTH situated in the immediate vicinity of the two universities.

NORDITA's mission is to achieve scientific excellence through cutting edge research and to promote Nordic and international co-operation in theoretical physics. The central areas of study are astrophysics, cosmology and gravitation, particle physics, and condensed matter physics. Over the years, the scope of NORDITA activities has widened to include new and emerging areas while maintaining a strong focus on excellent research in basic theoretical physics. Today, researchers at NORDITA are engaged in research over a broad range of topics and includes (in addition to the central areas mentioned above) biological physics, materials physics, nuclear physics, and statistical physics and complex systems.

The scientific staff of NORDITA consists of the Director, three permanent professors, and five assistant professors (some are five-year fixed-term positions; some are in joint positions with other universities). In addition there is a fellowship program for Nordic and international postdocs --- the "NORDITA Fellows". The institute's activities include numerous one-month Scientific Programs, shorter conferences, an extensive visitor program for scientists from all over the world, and symposia and summer/winter schools arranged by NORDITA alone or in co-operation with institutes in other Nordic countries.

NORDITA is governed by a board consisting of one member and one alternate from each Nordic country and a board chairman nominated by NOS-N, the joint committee of the Nordic natural science research councils. The board appoints the director as well as a number of Nordic scientific committees (representative of all five Nordic countries). These committees evaluate applications for NORDITA Fellowships and Programs and advise the board on scientific and educational matters.

NORDITA is funded by KTH and Stockholm University, the Nordic Council of Ministers, and through grants of the Swedish Research Council. The total budget in 2014 was approx. SEK 33.7 million. Of the total, 12.6 million was covered by project funds and is dedicated to specific research projects, while 21.1 million was the amount available for all of NORDITA's activities.

2. Assessment of the Panel of Experts

2.1. Introductory remarks by the Panel of Experts

The framework of this assessment is based on an assignment and terms of reference as provided by NordForsk (described in annexes 1 and 3): Accordingly, the "Peer reviewers are expected to use their expertise to assess the scientific quality and relevance of the Nordic co-operation body within its own field of research, in a Nordic and international context. The main question is to find out how added value has been created through the co-operation and what the role and status of the Nordic co-operation bodies are in the Nordic region/internationally."

The assessment is based on and limited to:

1. The material made available to the reviewers, mainly a self-assessment prepared by NORDITA
2. Interviews conducted with key staff, research fellows, and Board members at the institute during a one-day meeting held in Stockholm on 23 April 2015 (list of participants included)

Within the context of these limitations the Panel of Experts have summarized below their jointly held views on the assessment questions:

a) What is the significance of the Nordic co-operation body in terms of scientific results in its field in the Nordic region and internationally?

b) How is added value created through the Nordic and international co-operation?

2.2. *The significance and added value of the Nordic co-operation body in terms of scientific results in its field in the Nordic region and internationally*

Research profile of NORDITA

NORDITA is a world class research institute within and across theoretical physics, focusing on research excellence and having close coupling to the Nordic and international research arena.

The main research focus is on theoretical condensed matter physics, particle physics, cosmology and astrophysics. There are also recent developments in new areas, such as climate physics and biophysics. These topics are pursued in an interdisciplinary manner.

In connection with the move of NORDITA to Stockholm, the institute has gone through a phase of renewal including appointment of high caliber new faculty given that the entire complement of research faculty had reached retirement. Some emeritus faculty remain active.

NORDITA impressed the Panel of Experts with the quality and scope of the research. The Panel was also impressed by the ability of NORDITA to provide an environment which enables researchers both to explore deep questions and at the same time provides opportunities for synergy across disciplinary boundaries.

Research activities

Core activities comprise fundamental research carried on by the permanents scientific staff, assistant professors, post-doctoral fellows and graduate students; hosting and organizing extended visitor programs and workshops; summer schools and master classes.

A key feature of NORDITA is that it annually recruits a high quality cohort of young researchers who are free to develop their own programme of research supported by the faculty of NORDITA. NORDITA also supervises graduate students in collaboration with the neighboring universities. This provides a pool of highly qualified researchers for the Nordic region as well as internationally.

The quality of NORDITA is evidenced by an extensive track record of publications in leading journals, external grants, citation records, and international indicators of esteem. Highlights include an unusually high success rate for ERC advanced grants and 10-year grants of the Swedish Research Council. It is also notable that some of the fixed-term assistant professors were able to continue their research at NORDITA on competitively awarded grants. The success in hiring top candidates for the assistant professors and research fellows is evidence that young researchers consider NORDITA an attractive venue in which to develop their careers. The success rate of the junior faculty finding permanent academic jobs is unusually high by international standards.

The junior faculty enthusiastically supported the unique research environment which they feel combines academic freedom with exposure to the leading scientists in the international community on a regular basis through the program of workshops at NORDITA.

The Panel of Experts felt that, adjusting for scale of funding, NORDITA is competitive with other international institutes of this type known to the reviewers (comparable institutes include Max Planck Institute for the Physics of Complex Systems in Dresden, KITP Santa Barbara).

Merits and Excellence of key staff

The permanent faculty have outstanding research records, as evidenced by CVs and publication based metrics, invitations to international conferences and other esteem indicators.

Three out of four NORDITA permanent staff are relatively new to the institute having been recruited in the past few years. The Panel of Experts is of the opinion that the recruitment process has been highly successful. The Panel of Experts have a high level of confidence that these new appointees will have a positive impact and will thrive in their new environment.

The non-permanent faculty of assistant professors and research fellows identified the permanent faculty as one of the main attractions for working at the institute, as they provide important scientific leadership.

Nordic profile and relevance

It is the opinion of the Panel of Experts that NORDITA is a Nordic rather than specifically national (Swedish) institute. It provides a platform for profiling Nordic science to the international community and vice versa. Its governance is pan-Nordic. The resources of the institute are freely available across the Nordic region. The cohort of young researchers are drawn from across the Nordic region as well as internationally.

The composition of the Nordic Board (nominated by the national research councils of the Nordic countries) ensures that interests across the Nordic region are represented. The Board is directly responsible for governance of the institute and all major decisions.

NORDITA is formally an entity of the Stockholm University and The Royal Institute of Technology KTH, and is governed by its Nordic Board. This grants it a degree of independence, which the Panel of Experts feel is important in maintaining NORDITA's status as a Nordic resource.

The co-operation with universities in the Nordic countries could be further strengthened by a wider programme of joint positions, a need that NORDITA recognizes.

The alumni lists provided by NORDITA are impressive and document that a large number of faculty at Nordic universities within the field of theoretical physics have held positions at NORDITA. Former NORDITA fellows create a strong network throughout the Nordic region and internationally.

The brand

Internationally, NORDITA has a strong reputation for scientific excellence. The continued existence and support of such an institute sends a strong signal that the Nordic region takes very seriously its role as an international player at the cutting edge of science.

The NORDITA brand is regarded very highly by NORDITA staff and partners.

Theoretical physics has a strong history in the Nordic countries that pre-dates NORDITA. The institute NORDITA has built on this strength to establish its brand. The brand has been built up through many years and is now an asset in attracting high-level people to the Nordic region.

The NORDITA brand is based on the high level of scientific output. NORDITA's ability to fulfil its mission is enhanced by its high degree of independence, which it currently enjoys. An important factor is the availability of core funding, which has primarily come from the Nordic Council of Ministers.

How added value is created

NORDITA functions as a Nordic "hub" for research and research related activities in theoretical physics, attracting human capital within and to the Nordic region.

Human capital is the biggest asset of NORDITA. The institute gives the permanent scientists the resource of their own time, and a supportive academic environment. This enables the permanent staff to lead a comprehensive academic scientific programme that is internationally competitive, attacks topical fundamental problems and is broad in scope.

NORDITA is a venue for attracting and training highly qualified manpower. It develops the next generation of young scientists and gives them an opportunity to establish themselves in the international community of researchers.

It also potentially provides highly trained individuals whose quantitative, mathematical and modeling skills are valuable for the industrial and commercial sectors.

The possibility to broaden their own research scope through the stay at NORDITA and to co-operate across disciplinary boundaries was highlighted by many assistant professors and fellows as an important aspect of life at NORDITA. This is enabled through the academic freedom provided at NORDITA, combined with the caliber of the senior faculty and the possibility to meet and co-operate with excellent researchers, especially through the activities hosted by NORDITA.

Importantly, the profile of NORDITA is international, rather than specifically Nordic. This provides added value. NORDITA is a resource for attracting leading international academics to the Nordic region.

NORDITA provides a platform for building the teams necessary to make internationally competitive grant proposals, as evidenced e.g. by the success rate of obtaining ERC advanced grants.

The international profile of NORDITA supports individual researchers in gaining access to international large-scale programmes.

Future perspectives

NORDITA has successfully put in place a team of outstanding research faculty and the prospects for generating outstanding scientific results are very positive.

NORDITA has recently hired a new Director. She is an accomplished scientist with a strong ongoing research program. The Panel of Experts were impressed by her energy and ambition and they believe those will be positive factors for NORDITA's vitality in the future.

Core funding is important to maintain the position of NORDITA as an independent leading scientific institution.

The Panel of Experts was encouraged by the increasing level of co-operation with Nordic universities through joint positions and felt that this activity could be further expanded.

Some recommendations for future development

The Panel of Experts sees that increased interaction with industry would be beneficial for NORDITA. Such interactions could span the range from public-private research collaboration to appointment of adjunct professors seconded from industry. Some institutes form an interface with industry by appointing high profile members of the private sector to their board of directors. In as much as that would be possible for NORDITA, it would enhance the visibility of NORDITA in the private sector and it could enable employment opportunities there for the non-permanent research staff of NORDITA.

Two years post-doctoral positions only provide a short time to create opportunities for future positions. The senior longer term staff need to continue to ensure that these young researchers are guided in their futures beyond NORDITA. NORDITA could also consider possibilities to extend the fellows for a third year, either in co-operation with Nordic universities or by other funding opportunities (such as EU COFUND etc.).

Outreach activities are currently on the responsibility of the Director. Hiring professional dedicated staff for outreach would more efficiently support this important activity.

Conclusions

NORDITA is a strong research institute, built up during decades and has unquestionably brought added value in many ways to research on theoretical physics in the Nordic countries, as exemplified in this report, above all by creating a place for researchers to meet and work jointly, and by attracting international top researchers to the Nordic countries.

NORDITA is proud of their ability to renew themselves and to follow new developments in research – this ability is important if the institute is to preserve and consolidate its status and further develop and prosper.

The Panel of Experts strongly hold the view that the Nordic countries also in the future will benefit from having a unique asset like NORDITA, making the Nordic region visible and an attractive partner on the international science arena. The continued existence and support of such an institute sends a strong signal that the Nordic region considers itself as an international player at the cutting edge of science.

Annex 1

Annex 1: Background and Framework of the Evaluation

Background to the Assignment

In December 2013, the Nordic Council of Ministers' Committee for Senior Officials on Education and Research decided on changes in their funding allocations, meaning that NordForsk will from 2017 onwards govern the research funds that were previously earmarked for the following five *Nordic co-operation bodies:*

- Nordic Institute for Theoretical Physics (NORDITA), owned by KTH/Stockholm University
- Nordic Institute of Asian Studies (NIAS), owned by the University of Copenhagen
- Former Nordic Sámi Institute (NSI), owned by the Sámi University College in Kautokeino
- Nordic Volcanological Centre (NORDVULK), owned by the University of Iceland
- Nordic Institute for Maritime Law (NIfS), owned by the University of Oslo

In connection to this decision, NordForsk was tasked to perform an assessment of the scientific quality and relevance of these five Nordic co-operation bodies.

Framework of the Assessment

Aims

The aim of the assessment was to assess the scientific quality and relevance of the Nordic co-operation body within its own field of research, in a Nordic and international context.

The main assessment questions defined were:

- *What is the significance of the Nordic co-operation body in terms of scientific results in its field in the Nordic region and internationally?*
- *How is added value created through the Nordic and international co-operation?*

The results of this assessment will be used to assess the quality and relevance of the five Nordic co-operation bodies within Nordic university co-operation today, while decisions on possible future funding will be made through a separate process.

Assessment Process

The assessment was overseen by a Special Advisory Group appointed by the Board of NordForsk and consisting of the following members: Chancellor emerita **Krista Varantola**, Finland (Chair), Dr. **Agneta Bladh**, Sweden (Vice Chair), Vice-Chancellor emeritus, prof.

Jens Oddershede, Denmark, Pro-Rector **Kenneth Ruud,** Norway, and Director General **Hallgrímur Jónasson**, Iceland.

The assessment included a self-assessment performed by the Nordic co-operation body as well as peer review performed by an international external Panel of Experts.

The Panel of Experts for the Nordic Institute for Theoretical Physics NORDITA included the following external and independent experts:

Professor Ignatios Antoniadis, Theory Division at CERN, Geneva

Professor Sandra Chapman, Centre for Fusion, Space and Astrophysics, Physics Department, University of Warwick,

Professor Gordon Semenoff, University of British Columbia (UBC), Vancouver, Canada

Self-assessment

The self-assessment of the Nordic co-operation body was issued in December 2014 and submitted by the end of February, 2015. The self-assessment consisted of

A Fact Sheet, containing facts from the past five years (2010-2014) on main research related activities (e.g., staff, publications, main research projects, researcher training, visiting researchers, infrastructure etc.)

A Self-assessment report, with reflections about the research activities of the co-operation body; its Nordic added value; its stakeholder relations; Nordic university co-operation in general; and future perspectives of the Nordic co-operation body.

The self-assessment of the Nordic Institute for Theoretical Physics (NORDITA), is enclosed in annex 2.

Peer review

The peer review of the Nordic co-operation body was performed by the external Panel of Experts named above, and according to detailed guidelines of NordForsk concerning the aim of the peer review, the role of the reviewers, the review process, and confidentiality and impartiality issues. The guidelines for reviewers are enclosed in annex 3.

The peer review was based on the following written material made available to the reviewers in the beginning of March 2015:

- The fact sheet compiled by the Nordic co-operation body
- The self-assessment of the Nordic co-operation body
- Web page, central strategy documents, and annual reports (2010-2014) of the Nordic co-operation body

Other recent evaluations of the Nordic co-operation body and/or its host institution, as well as recent evaluations of relevant scientific disciplines in the Nordic countries were consulted in the assessment as secondary material.

The peer review culminated in an assessment meeting, including site visit, interviews and group discussions.

The report of the Panel of Experts was finalized after the assessment meeting and is enclosed in chapter 2.

Assessment meeting

The assessment meeting was organized on 23 April 2015 at the Nordic Institute for Theoretical Physics NORDITA in Stockholm, Sweden.

During the meeting, the international Panel of Experts and the Nordic Special Advisory Group met representatives of the Nordic co-operation body and its host universities. Time was allocated for interviews and group discussions in order to clarify any issues of importance for the final assessment of the scientific quality and relevance of the Nordic co-operation body.

The agenda and participants of the meeting are found in annex 4.

Role of the Special Advisory Group

The Special Advisory Group appointed by the Board of NordForsk carried the responsibility of overseeing the review process and the review meeting. The Special Advisory Group will summarize its recommendations to NordForsk concerning Nordic university co-operation, in a separate report to be finalized early 2016.

Annex 2

SELF-ASSESSMENT OF THE NORDIC CO-OPERATION BODY:

Nordita, the Nordic Institute for Theoretical Physics

REPORTING PERIOD: 1.1.2010 – 31.12.2014

PLACE AND DATE: Stockholm, 27.2.2015

NAME AND TITLE OF RESPONSIBLE DIRECTOR OF THE CO-OPERATION BODY:

Prof. Katherine Freese, Director

1. RESEARCH AND RESEARCH RELATED ACTIVITIES

How would you define your academic field and your position and impact in terms of Nordic, European and global contexts?

Nordita conducts world-class research in theoretical physics with strong presence in the areas of Astrophysics, Cosmology, High-Energy Physics, Condensed-Matter and Statistical Physics. Current research projects in high energy physics, and condensed matter physics are financially supported by Advanced Grants from the European Research Council (ERC); in addition astrophysics research was funded by a previous ERC Advanced Grant whose term has just run out. These grants demonstrate the international excellence and competitiveness of research at the institute, as well as its relevance for the European research community. The high standard of Nordita's research is further underlined by generous project grants from Swedish sources in astrophysics and, more recently, condensed matter physics, and cosmology, as well as one from the Norwegian research council.

The expertise combined in these various areas is unique in the Nordic context. In the European context, research at Nordita is at the cutting edge and constantly pushing forward. In the global context, Nordita is competitive and strives to stand out in terms of its selection of research topics. The institute's impact, especially in the Nordic countries, reaches far beyond the research pursued by its local staff because of the institute's active role as a facilitator for scientific meetings and new collaborations that serve the discovery and establishment of new directions in research.

What are your main activities in your academic field?

Local Research Activities:

- Astrophysics: Turbulence in plasmas subject to electromagnetic fields, including magnetic fields in the sun and in planetary disks, outbursts on the surface of the Sun, and solar wind.
- High energy physics: String theory and gauge-gravity duality, applications of the gauge-gravity duality to condensed matter systems, quantum gravity phenomenology.
- Gravitation and Cosmology: Dark matter, inflation, phenomenological models of the Universe and modifications of General Relativity that can be tested by observation.
- Condensed matter physics: Ultracold bosonic and fermionic liquids, spin-spin interactions, Dirac Materials, interactions between graphene and DNA.
- Statistical physics: Hydrodynamics, non-equilibrium thermodynamics.

Infrastructure Activities (for details please see Fact Sheet, item 5):

- Nordita conducts 6-8 scientific programs per year. Each program hosts about 20 scientists for up to a month (see Appendix B.4), and gives them space and time to discuss and work on shared interests. The expertise gathered at the programs makes Nordita an important and much used collaborative hub for Nordic scientists.
- Conferences and workshops are held throughout the year, benefitting the exchange and generation of ideas and the growth of new collaborations, especially within the Nordic countries (see Appendix D).
- The active visitor program for both long-term and short-term visits provides additional expertise for local staff (see Appendix B.3).
- Winter schools and network meetings, where priority is given to participants and speakers from the Nordic countries, contribute to the dissemination of knowledge across country borders (see Appendix C).
- In the Visiting PhD fellowship program, preferentially for candidates from the Nordic countries, students are exposed to a vibrant research environment at an early time in their career (see Appendix B.1).

What do you consider to be your strengths and weaknesses in your own field?

Nordita's strength is the excellence in research of the local staff, the many international collaborations, and its active role in facilitating and supporting the development of new ideas with scientific meetings that run throughout the year. The research output in terms of publications and conference talks is steady at a high level and speaks for itself (see fact sheet and Appendices D and E for details). Nordita staff has been extremely successful in attracting major project funding from the ERC, the Wallenberg foundation, the Swedish Research Council and the Norwegian Research Council, as well as conference support from private foundations like the Foundational Questions Institute and the Fetzer Franklin Fund. Nordita's high international visibility in the community attracts large numbers of applicants from around the world: The number of applicants for post-doc positions presently averages at 400-500 each year, and the number of applicants for assistant professors averages at about 60-80.

Due to its open-minded research agenda and the large diversity of experts attracted by the many meetings, Nordita is also strong in reaching out to fields beyond the borders of theoretical physics. Theoretical physicists are used to being confronted with problems that are difficult and sometimes almost impossible to solve. Students and post-docs trained in this field must learn how to deal with these challenging situations, and this ability then can be used not only if they continue their scientific career in research in theoretical physics, but also if they go on to work in industry, banks, to teach in secondary education, or to research in adjacent fields. The general usefulness of skills acquired with a theoretical physics degree makes physics one of the most cross-disciplinary disciplines. The emerging fields econophysics and sociophysics, in which the tools and methods from theoretical physics are

applied to economic and social systems, are recent examples. Due to its many contacts, Nordita is well positioned to contribute to this stimulating interdisciplinary exchange.

Nordita's weakness is the small number of permanent faculty and the absence of tenure-track positions, and as of recently the limited amount of base research funding that is not project-bound, and also to a significant extent not from Nordic sources. This makes it increasingly harder to fulfill our Nordic mission. The international visibility of the institute is certainly good within the community, but its public visibility needs to be enhanced.

2. NORDIC ADDED VALUE

Please describe your Nordic profile? What makes you a Nordic institution instead of a national institution? What are the main benefits of being a Nordic institution in your field?

Nordita is a common Nordic resource for the advancement of theoretical physics. Theoretical physics is a key area of the basic research fields and always in rapid development. In this field, flexible cooperation across national borders plays an important role especially in countries which are sparsely populated. The research infrastructure that Nordita maintains is essential for progress by connecting researchers within the Nordic countries, and the Nordic countries with the global research community.

Nordita's Nordic profile reflects clearly in its activities, in which the Institute gives preference and pays special attention to the needs of Nordic researchers. This shows in the visiting PhD program (intended mainly for candidates from the Nordic countries, though exceptions can and have been made), the Nordic network meetings, the high percentage of Nordic participants in scientific meetings, and the large fraction of Nordita alumni that have gone on to become faculty at Nordic universities.

While on the one hand the institute fosters the connectivity of researchers within the Nordic countries, on the other hand it also connects the Nordic countries with the international community. The postdoctoral fellowship program at Nordita attracts young researchers from all five Nordic countries and also serves to bring international talent into the Nordic region. Nordita's advanced summer and winter schools for graduate students and postdoctoral fellows supplement the regular curriculum at Nordic universities, and bring in knowledge about the most recent international developments. Nordita is a window to the world for Nordic graduate students via schools and conferences offered throughout the Nordic countries, in which young researchers can make contacts essential for their scientific growth.

One of the most important goals of Nordita has been to organize activities for the Nordic researchers and PhD students that could not be organized by a single Nordic university because too few people are working in a certain research field. These, however, can and have been organized by Nordita collecting all interested people at the Nordic level. Examples of this are the Nordic meetings on fast developing fields, like those in field theory and string theory and in statistical physics. Another example are the advanced courses for post-docs and PhD students that again cannot be organized at the level of a single Nordic university due to the small number of people involved. At least one of such courses is organized

by Nordita every year. Finally, the more recent example is the organization of programs, lasting typically four weeks, on various aspects of theoretical physics, which bring together experts in any particular field of theoretical physics. Particular importance in the organization of these programs is given to have a numerous Nordic participation.

The Nordic profile is also apparent from the Institute's organization. Nordita is governed by its Board consisting of members from the five Nordic countries. The Board makes decisions on the scientific direction and the strategic development of the Institute. In these decisions, the Board relies on input from its Scientific Advisory Committee. In the hiring of postdoctoral researchers the institute consults Research Committees that have members from each of the Nordic countries. These committees are responsible for the initial rankings in the postdoc recruitment process. Researchers at Nordita have extensive collaborations with other institutes such as SINTEF and NTNU in Trondheim, Norway, Aalto University, and the University of Helsinki. Yasser Roudi from NTNU in Trondheim is a Corresponding Fellow at Nordita, and Nordita's former director, Larus Thorlacius from Reykjavik, Iceland, is a guest professor at the department of physics, SU. Post-doc positions are sometimes shared with other institutes (currently with Aalto University and with the Oskar Klein Center in Stockholm).

The large benefit that Nordita has from being a Nordic, rather than merely a national organization, is its wide reach on the expertise in the Nordic countries. This is an advantage for both researchers in the Nordic countries, by using their knowledge base more efficiently, and for the international community, by making the Nordic excellence apparent and more accessible. As a national institution such a broad benefit for the community would not be achievable.

How would you describe your contribution to Nordic added value? (Please provide concrete examples and information about developments.)

124 Nordita alumni (former Nordita post-docs, assistant professors, and corresponding fellows) have so far obtained positions at faculties in the Nordic countries (see Appendix J for details). This documents that the education and expertise provided at the institute directly benefits the research infrastructure at Nordic universities.

Approximately one third of the visitors and program/workshop participants come from the Nordic countries. A Nordic added value is also the winter schools and network meetings.

Nordita has organized in the past and will, if Nordic funds will be available also in the future, continue to organize activities that cannot be organized by a single Nordic university. The various institutes organizing programs in the world (GGI in Florence, Kavli Institute for Theoretical Physics (KITP) in Santa Barbara, MITP in Mainz, APCTP in Pohang) are all connected to universities, but are, like Nordita, independent from them. Some of them (APCTP, KITP) were indeed created following the Nordic example. Like the programs, schools in advanced topics in theoretical physics cannot be organized by a single Nordic university because of the small number of PhD students and post-docs they have in these fields. But if one collects PhD students and post-docs from the Nordic countries, then the number is high enough to make it possible to organize them. This has also the great advantage of creating a closer

contact among the Nordic PhD students and post-docs working in a specific direction of theoretical physics. For this reason also institutes as the GGI in Florence and the APCTP in Pohang are now organizing schools in advanced topics in theoretical physics.

How has your role and status as a Nordic institution evolved over the years? What have been the main turning points and critical factors affecting your development?

Major events in the previous five year period that influenced the research directions at the institute were the following:

- **September, 2010**: recruitment of the second full professor, Konstantin Zarembo in high energy physics, the gauge-gravity correspondence in particular.
- **August 2012**: recruitment of the third full professor, Alexander Balatsky. With this recruitment, the plan to reestablish local permanent faculty after the 2007 move was completed.
- **October 2009**: From Prof. Brandenburg's ERC grant (2009-2014) were recruited as assistant professor D. Mitra, whose research focuses on turbulence, 3 post-docs, and 4 PhD students.
- **January 2013**: Prof. Balatsky obtained an ERC grant for his work on Dirac Materials as well as a generous grant from the Swedish Wallenberg foundation, which led to the appointment of D. Abergel as assistant professor, as well as 3 post-docs and 2 PhD students.
- **February 2014**: Prof. Zarembo obtained an ERC grant for his work on integrability in the gauge-gravity correspondence. One assistant professor will be hired, and several post-docs and PhD students have already been hired.
- **July 2014**: VR grant decision Wettlaufer, will take up a position at Nordita in March, 2015
- **September 2014**: At the end of the turn of the previous director, Prof. Larus Thorlacius, Prof. Katherine Freese takes on the position of Nordita's director.

Critical factors affecting the institute's development

- Shortage of non-project bound funding has stalled recruitment of assistant professors not tied to research agendas. The original plan was to have five independent assistant professors, but due to lack of funding the institute has presently only 2 (Koivisto, Hossenfelder) plus 2 shared positions with Uppsala (Guica, Johansson). The other assistant professors (Abergel, Eichhorn, and Mitra) are on project funding.
- Lack of administrative personnel due to shortage of funding hinders improvement of visibility, public outreach, and local operations.

3. STAKEHOLDERS

Please describe your degree of integration and way of co-operating with the host university.

Nordita is not part of any department or school neither at SU or KTH. In the organizational structure of the two universities, the institute is directly under the presidents. For this reason, the institute cannot itself issue exams or enroll PhD students. However, the permanent staff at Nordita is formally employed at any one of the host universities (including Uppsala University), and can therefore supervise PhD students who are registered at those universities.

The institute is well integrated with research at the surrounding universities, while at the same time it maintains its own identity and makes independent hirings. The condensed matter group collaborates with biotechnology at KTH; the astrophysics group maintains collaborations both with astronomy at SU, meteorology at SU, and mechanics at KTH; and the theoretical biology group collaborates with the data science department at KTH. There is also strong collaboration with the Oskar Klein Center (OKC) one post-doc, whose third year will be covered by the OKC.

What are the pros and cons of your way of working with the host university? (e.g., degree of integration, the strategic interest of the host university to continue with the cooperation etc.)

The pros are the fruitful collaborations with the relevant departments at SU, KTH, and UU. The host universities show an active interest in maintaining and developing Nordita, for example through direct funding. To be directly under the presidents in the university's organization, rather than being under the School of Natural Sciences, has the advantage of giving Nordita a lot of freedom, but also the disadvantage that Nordita cannot grant PhDs or give regular undergraduate courses. This disadvantage is counteracted by the good relations with individual institutes at the host universities, including UU, in collaboration with which Nordita faculty can have PhD students. Furthermore, research staff at Nordita lists KTH and SU as affiliations, so the high productivity of Nordita staff counts to the favor of the host university's output statistics. However, a disadvantage for SU is that, since Nordita is administratively is under KTH, ERC projects, for example, are registered only at KTH and do not show up in the statistics of SU.

Who are your other a) academic and b) societal main stakeholders? Please address the following questions:

1) why do you see them as the main stakeholders?

2) what is their role in the co-operation?

3) how do you co-operate with them?

Other stakeholders are the research councils in the Nordic countries, including Nordforsk. Nordita has received funding directly from the Norwegian research council (see Brandenburg's CV for details) and indirectly from the Finnish Academy.

The other major stakeholders are the Nordic universities. This important component is discussed in Section 4 just below (Nordic university cooperation).

4. NORDIC UNIVERSITY CO-OPERATION

Please list your main university partners in the Nordic countries? What type of co-operation do you have with them?

Nordita has strong ties with the Universities in the Nordic region. More than a hundred Nordita alumni now hold faculty positions at Physics departments in all of the Nordic countries (see Appendix J). There are several schemes through which Nordita fosters collaboration with the Universities, such as Corresponding Fellowships, visiting positions allowing established researchers to spend fraction of their time at Nordita, Visiting PhD Positions, and joint faculty or postdoc appointments that contributed to attract the best qualified theoretical physicists to the Nordic countries.

Apart of the host Universities, Stockholm University and KTH, the main University partners of Nordita are

Uppsala University: Senior lecturers Monica Guica and Henrik Johansson were recruited jointly with Uppsala University at the Associate Professor level and will spend 50% of their time at UU and 50% at Nordita for the first five years. Such a joint appointment was clearly more attractive than a regular University position because of the research opportunities at Nordita, and at the same time added the job security of University tenure to otherwise fixed-term Nordita appointments. Prof. Bengt Gustafsson from Uppsala University is a Nordita Corresponding Fellow and works at Nordita one day per week. Three PhD students from Uppsala are supervised by Nordita faculty.

Norwegian Institute of Science and Technology (NTNU): Dr. Yasser Roudi, formerly a postdoc at Nordita, is now a Nordita Corresponding Fellow and works at Nordita for 1-2 months a year, maintaining close collaboration in the area of biophysics. Joint project between NTNU and Nordita on particle motion and particle accumulation in turbulent flows has received financial support from the Research Council of Norway.

Gothenburg University: Project on particle growth in turbulent aerosols involves researchers from Gothenburg and Nordita and is supported by the Knut and Alice Wallenberg Foundation.

University of Helsinki: In the field of astrophysics, researchers at Nordita have an ongoing intense collaboration with astrophysicists at the University of Helsinki.

University of Iceland: Ongoing collaboration in the area of string theory, among others with former Nordita researchers Valentina Giangreco Puletti and Larus Thorlacius

Aalto University, Helsinki: A workshop in Statistical Physics in Mariehamn is jointly organized by Nordita and Aalto University every year. Furthermore, one post-doc is currently employed jointly at Aalto University and Nordita.

NBI, Copenhagen: New collaborating activities are starting in the areas of Condensed Matter Physics and String Theory.

What has worked well and what has not worked so well in Nordic university co-operation in your field (strengths and weaknesses)? Please provide concrete examples.

Cooperation between Nordita and Universities in the Nordic countries has worked well over all. From all Nordita publications during 2010-2014, at least 63 were done in collaboration with colleagues from other Nordic universities. Cooperation-fostering activities include joint positions, visits, common workshops, and student exchange. These activities are currently shrinking under the financial strain due to diminishing Nordic funding.

Do you have any suggestions of how to develop Nordic university co-operation in your field?

The most important tools are shared positions, at the assistant professor, postdoc, and PhD student levels, as well as encouragement and support for the creation and growth of new collaborations. Nordita currently has joint faculty positions with Uppsala University. Discussions with other Nordic Universities about joint assistant professors with Nordita are under way. Joint offers with NBIA in Copenhagen on common postdoctoral appointments have taken place. Another important tool is the Nordita fellowships, which over the years proved useful to foster Nordic research and to attract talent into the Nordic region.

Co-operation greatly benefits from shared interests, which can be supported by making use of advances in communication technology. Seminars and conferences could connect more researchers by offering an opportunity to participate online by video links, and webinar series could be established to support exchange between departments at the Nordic universities. A better online presence and documentation of research activities by audio/video recording would also go a long way to develop better co-operation, especially in the realm of education and public outreach. Making this a reality requires both technical equipment and dedicated personnel.

5. FUTURE PLANS

What kind of plans do you have for your activities and funding sources from 2017 onwards? What are your main strategic priorities?

The institute's strategic priorities for the future then are scientific excellence and adding Nordic value by training and connecting Nordic scientists. The vision is for Nordita to be an international platform with focus on basic science. International visibility of Nordita's research enriches science in the Nordic region, trains future generations of scientists and serves as a focal point to bring in researchers from the world into the Nordic community. Nordita strives for global impact: bringing in the best people to work

together to create new ideas and find solutions relevant to shaping our future. To make this reality, the planned activities are to continue in-house research; scientific programs lasting one month in extent; shorter conferences of lengths varying from a few days to a week; winter and summer schools; as well as outreach activities. True to the institute's mission, all these activities benefit the Nordic area, as demonstrated by the numbers in the fact sheet.

In early 2014, Nordita underwent an internal self-assessment and produced a strategy document (see Appendix G) that lays out future plans for the next decade. The findings can be briefly summarized as follows:

Nordita sees its priority in conducting high-level research and benefitting knowledge discovery in theoretical physics in the Nordic countries. To this end, the institute needs to maintain scientific independence, and to actively explore new ways to support and grow Nordic research networks and collaborations, as well as advance communication of Nordic research to the international community and the public.

The internal assessment found that scientific meetings, the visitor program, and educational efforts are going well and are of high standard, though some structural improvements were recommended (for example the possibility to arrange programs on short-term).

Regarding funding sources: In section 2. we have listed some of the grants Nordita faculty has received. In addition to this project-driven research, we anticipate future funding from the Swedish Research Council (VR) to continue at the current level. The two universities (SU and KTH) will continue their support of Nordita via the housing and other overhead-free infrastructure they provide. Indeed we have been given a third building, in addition to the two current Nordita buildings, by the universities. Renovation is under way and we expect to be able to move in at the end of March 2015.

As mentioned in earlier points, the shortage of non-project-bound funding was found to be problematic, putting at risk the institute's flexibility and breadth of research, as well as limiting its Nordic impact. It was recommended that the institute makes all possible efforts to increase its core-funding for the maintenance of activities with Nordic value, such as the scientific meetings, schools, and the training of researchers, many of whom go on to become scientists in the Nordic countries.

The assessment identified that shortcomings in science communication and public outreach are mainly due to lack of administrative support and the hesitation of the Nordita Board to approve funding for more administrative personnel at the time. The institute is in an excellent position to add Nordic value, due to its long history and many connections. However, it is hindered in its Nordic mission by uncertainties and decline of continuous financial support which is needed to plan ahead on the many network activities, and which is necessary to attract scientists to independent research positions.

From 2015 the Nordic core-funding for Nordita was cut by 20% and discussions of substantial, maybe even total, further cuts took place. If this were to happen then the future of Nordita as a Nordic institute would be threatened.

Nordita is more than the sum of its parts, thanks to its Nordic profile. But the Nordic component of Nordita, such as the Nordita fellows, depends on Nordic funding. The unifying part of the funding has to come from a Nordic body. Our financial goal for the coming years is that the funding provided by the

Swedish sources is matched by funding from a Nordic source that can be used for our continuous operating costs connected to the fulfilment of our Nordic mission.

How do you assess your ability to attract competitive funding (strengths and weaknesses?)

The institute has clearly demonstrated that it excels at attracting funding for individual research projects, and has proved its strength in this area. As detailed in section 2, all of our permanent faculty have succeeded in attracting major grants. Indeed, each of the three permanent faculty members has obtained an Advanced ERC Grant. Perhaps one may view this as confirmation that Europe feels that Nordita contributes added value in terms of its unique multidisciplinary program activities and postdoctoral Nordita fellows.

In addition to the major grants from the ERC, Freese and Wettlaufer have obtained grants from VR in the amount of 200 MSEK over 10 years. Nordita has 6 more VR grants of smaller amounts. In addition, Balatsky has a Wallenberg grant, and Brandenburg and Mitra are co-applicants on another successful Wallenberg grant. Recently, Brandenburg received a grant from the Norwegian Research Council for joint work with NTNU and SINTEF, which thus acknowledges Nordita's Nordic character.

The broad Nordic objective of the institute's activities requires support from the integrated body of the Nordic countries. Despite its Nordic mission, Nordita faculty (and also the institute as a whole) cannot apply for funding to national funding bodies in all the Nordic countries because it is physically located in Sweden. Funding from national research councils has only been obtained in one case (Norway) so far. National funding bodies are, naturally, more inclined to support national institutes. All of the above mentioned grants obtained by Nordita faculty are project-driven, intended for individual research projects. They demonstrate confirmation of our scientific excellence, but such funding is not sufficient for the institute to fulfill its Nordic mission.

Nordita's high performance is greatly served by its faculty dedicated to the Nordic mission. We do feel we will be competitive in the Nordic arena if there is the appropriate call for funding.

What type of funding instrument(s) (fixed-term, competitive) would be best suited for your purposes?

Nordita's most relevant role for theoretical physicists in the Nordic countries is to act as a facilitator for new collaborations and the development of ideas, by its many scientific meetings and the training of researchers, researchers who go on into other Nordic countries and contribute further to research and education. The institute and its facilities allow Nordic scientists to more efficiently use existing knowledge resources, and to better connect to the international community.

To offer this unique research service to scientists from the Nordic countries and to attract researchers to this part of the world, Nordita needs continuous Nordic core-funding. The Nordic value that the institute adds cannot be maintained on short-term or project-bound funding. Nordic and Swedish core-funding

together will allow Nordita to generate substantial additional project-bound funding which will further enhance Nordita as a Nordic institute.

To best support Nordic research activities of the type that Nordita is an example of, we propose a funding instrument which we tentatively call "*Nordic Center for Advanced Studies*." This instrument would fund Nordic research institutes which have as their mission to:

i. Enhance outstanding research in the Nordic countries by attracting world-class scientists, bringing in new expertise and initiating new research directions.
ii. Train future scientists who then go on to contribute to research and education in the Nordic countries.
iii. Serve as a node in the network of the Nordic community to better connect researchers within the Nordic area, and to be a bridge to the international world.
iv. Communicate the societal relevance and impact of scientific research to the public.

The funding instrument should be fixed-term, competitive but renewable. We advocate a five year funding cycle, as this allows sufficient time for planning and implementing activities. Programs require advertising, reviewing, selecting, and finally organization of the event, which includes handling a large number of visitors. Thus, two years of lead time are needed for our programs. The hiring of scientific personnel (post-docs and assistant professors) would also be suited for this time frame. Funding should be renewed, after evaluation, if the activity is found to be excellent and of continued Nordic importance. A clear focus on the Nordic aspects is crucial for the impact of this funding instrument.

FACT SHEET OF THE NORDIC CO-OPERATION BODY:

Nordita, the Nordic Institute for Theoretical Physics

REPORTING PERIOD: 1.1.2010 – 31.12.2014

PLACE AND DATE: Stockholm, 27.2.2015

NAME AND TITLE OF RESPONSIBLE DIRECTOR OF THE CO-OPERATION BODY:

Prof. Katherine Freese, Director

1. PERSONNEL OF THE NORDIC CO-OPERATION BODY

List the name and position of current key staff members of the Nordic co-operation body (including permanent and fixed term research staff, administrative staff etc.) Add rows to the table, if needed. Please provide brief cv's (max 3 pages) for key staff members.

Name of key staff	Position
Katherine Freese	Director, professor
Axel Brandenburg	Deputy director, professor
Alexander Balatsky	Professor
John Wettlaufer	Professor
Konstantin Zarembo	Professor
Anders Rosengren	Professor (5%)
Paolo di Vecchia	Professor emeritus
John Hertz	Professor emeritus
Christopher Pethick	Professor emeritus
Ulf Wahlgren	Professor, Director emeritus
David Abergel	Assistant professor
Sabine Hossenfelder	Assistant professor
Ralf Eichhorn	Assistant professor
Tomi Koivisto	Assistant professor
Dhrubaditya Mitra	Assistant professor
Monica Guica (sen. lect. Uppsala)	Assistant professor
Henrik Johansson (sen. lect. Uppsala)	Assistant professor
Marianne Persson Söderlind	Head of Administration
Anne Jifält	HR officer
Elizabeth Yang	Scientific program co-ordinator
Iouri Belokopytov	Head of computing (20%)
Hans v. Zur-Mühlen	Web and computing

(See Appendix A for their CVs.)

Please give the total number of personnel employed by and/or affiliated with the Nordic co-operation body. Please indicate the number of persons in each category as listed (number of persons, number of person years in total, and number of person years paid by the NCM funds). If you have had significant annual fluctuations, please indicate changes over the years.

	Number of persons	Person years in total	Person years paid by NCM funds
Professors	4	20	20
Senior researchers (Assistant professors)	7	25	0
Postdoctoral researchers	10	50	50
Postgraduate students	5	17	0
Other academic personnel	2	1	0
Auxiliary personnel (office, technical, other personnel)	5	24	21

2. RESEARCH AT THE NORDIC CO-OPERATION BODY

Please describe briefly (max 1 page) the main areas of research of the Nordic co-operation body, main research aims, and how you work to achieve these.

What are the main achievements of the Nordic co-operation body during the past 5 years? What scientific challenges should be addressed in the near future?

Please enclose any relevant strategy documents.

Nordita conducts research in theoretical physics. The main aim of the Institute's research is to discover and support the growth of new ideas, ideas that have the potential to significantly contribute to societies' progress. In this, the Institute's research goes hand in hand with its networking and infrastructure activities.

Much of the Institute's research directly aims at benefiting our society in the near future, such as forecasting solar activity or understanding how structural defects change the behavior of materials. Parts of the research are foundational and dedicated to better understanding the fundamental laws of nature, to facilitate paradigm shifts and the development of new theories that are necessary for sustainable progress in the long-term.

The institute is well known for its unique research in **solar physics**. The group around Prof. Brandenburg is world leading in the understanding of turbulent flows of hot plasmas subject to electromagnetic fields. Centerpiece of this research is a computer program, the Pencil Code (http://Pencil-Code.GoogleCode.com), which is a constantly improving open-source project initiated by Prof. Brandenburg in 2001. An important breakthrough in the past 5 years was the numerical demonstration of a sunspot cycle similar to that of our own Sun (see Ref. [244] of Appendix E) and a new theory for how these spots form (see Refs. [124,332] of Appendix E). Prof. Brandenburg was awarded a five year ERC Advanced grant in 2009.

A great contribution to Nordita's group on **high energy physics**, Prof. Zarembo started his position at in September 2010. Prof. Zarembo works on Quantum Field Theory and String Theory, and he is well known for the discovery of integrable structures in the AdS/CFT duality. Prof. Zarembo received an ERC Advanced grant in 2013 to support his work on integrability in gauge and string theories. A major result of the last five years is finding exact solutions of massive holographic field theories.

Another highlight during the previous 5 year period was the strengthening of Nordita's **condensed matter** group with the arrival of Prof. Balatsky, who joined Nordita in August 2012. Prof. Balatsky was awarded an ERC advanced grant in 2013 for his groundbreaking research on Dirac Materials, and another grant from the Wallenberg Foundation in 2014. Subject of his research is understanding the unusual properties of Dirac Materials, which is a class of materials that includes graphene, topological insulators, and certain types of superconductors. His most recent work focuses on interactions that drive these materials towards magnetic and superconducting instabilities, where unexpected and novel behavior can emerge.

In previous assessments of the Nordita Board and the Scientific Advisory Committee, it was found that strengthening the representation of **cosmology and astrophysics** at the institute would be highly desirable. A major step towards this goal has been made with Prof. Freese taking on the position of

Nordita's new director in September 2014. Prof. Freese was awarded a major research grant from Vetenskapsrådet to continue her work dedicated to unraveling the mystery of dark matter.

An internal strategy document formulated last year identifies the following challenges to be addressed in the near future.

First, while project-bound funding is excellent, the institute needs to secure more funding not tied to fixed projects. This is both necessary to support independent researchers (on the level of assistant professors and postdoctoral researchers) in setting their own agenda, and essential for the Institute's scientific meetings and network activities.

Second, the institute should give more space to meetings organized on short-term in order to timely respond to recent development.

Third, the institute should strive to enhance its international visibility both inside the community as well as publicly, by improving its online presence and outreach activities.

(For details, please refer to the attached strategy document "Nordita: Today and Tomorrow" in the Appendix G.)

3. RESEARCHER MOBILITY AT THE NORDIC CO-OPERATION BODY

Please specify research stays at other institutions as well as visits by foreign researchers. Here mobility is defined as a stay abroad of at least 2 weeks duration. Add rows to the table, if needed.

Name, job title, organisation	Site of work	Purpose of visit	Duration of visit	Comments, output of the visit
23 visits by PhD and MSc students	Nordita	Research within a stimulating environment	1-3 months	see Appendix B.1
53 visits by Nordita scientists to other institutes	various places	research visits, meetings, teaching at schools	2 -12 weeks	see Appendix B.2
1002 visits by others cientists	Nordita	collaboration within program activity	2-4 weeks	see Appendix B.3
112 visits by Nordita scientists to other institutes	various places	research visits	2-8 weeks	see Appendix B.4

4. RESEARCHER TRAINING AND DOCTORAL EDUCATION AT THE NORDIC CO-OPERATION BODY

Please list researcher training courses organised by the Nordic co-operation body. Specify the number of students participating (own students and other students) and number of ECTS points gained in the courses. Add rows to the table, if needed.

Course (name of course, institution, person responsible)	Own Students	Other students	Number of ECTS points
Nordita Winter School 2010 on Dynamos	6	34	3
Nordita Winter School 2011 on Condensed Matter Physics	1	29	3
School on Data Assimilation	7	22	3
Summer School in Random Geometry	4	32	1
Nordic Winter School 2012 on Theoretical Particle Physics	5	34	3
Mini-School on Advanced Simulation Methods for Biomolecular Systems	0	39	1
Course in Lattice Boltzmann Methods of Complex Phenomena Across	12	6	1
Nordita Master Class 2012	0	35	1
Nordita Winter School 2013 in High			

Energy Astrophysics	4	24	3
Nordita Winter School on Condensed Matter Physics	4	27	3
Nordita School on Integrability	5	36	1

Give the number of recruited PhD and post.docs. Please specify how many PhDs and post.docs are recruited nationally and how many are recruited internationally?

Please note that Nordita does not have a PhD program and students cannot take exams at the institute. PhD students at Nordita are formally enrolled in a PhD program at one of the surrounding universities and Nordita staff acts as supervisor or co-supervisor.

Number of PhD students recruited nationally	1
Number of PhD students recruited internationally, how many of these are from other Nordic countries?	8/1
Number of post-docs recruited nationally	0
Number of post-docs recruited internationally, how many of these are from other Nordic countries?	54/15

Describe your contribution to PhD degrees awarded through the co-operation: How many PhD degrees have been awarded? By which university have they been awarded? Add rows to the table, if needed.

PhD degrees awarded	Where awarded?	Contribution of the Nordic co-operation body
4	Dept. of Astronomy, SU	Instructor (Axel Brandenburg)
1	University of Iceland	Instructor (Lárus Thorlacius)

5. MEETINGS AND EVENTS ORGANISED BY THE NORDIC CO-OPERATION BODY

Please describe briefly any major meetings, conferences or other events organised by the Nordic co-operation body.

Scientific Programs

Throughout the year, Nordita arranges 6-8 scientific programs. Each scientific program extends over a period of four weeks and focuses in depth on a specific scientific topic or collection of topics. The programs bring researchers together and give them the opportunity to discover common interests and start new collaborations. The programs' topics frequently go beyond the traditional borders of theoretical physics and explore interdisciplinary contact points in the natural sciences.

Nordita provides the facilities and administrative support for program participants, and in many cases the academic staff at the Institute is actively engaged in the organization and execution of program activities. Currently, up to 25 participants can be accommodated at any given time during a Nordita program. This typically includes a core of 8–12 internationally recognized leaders in the subject area of the program, 5–8 invited Nordic scientists, and a limited number of other applicants, including postdoctoral fellows and PhD students. Although there are no quotas, the level of Nordic participation in the programs has been high. Scientific programs can include focus events — conferences, workshops or schools — with a higher number of participants for shorter periods.

During the years 2010-2014, Nordita organized a total of 38 programs, listed in the attached document "Nordita Programs 2010-2014". Full information about any specific event is available on the Nordita's website at http://www.nordita.org/science/programs/list_of_programs/index.php . For a full list and description of programs, see Appendix D below.

Workshops and Conferences

In addition to the programs that last several weeks, Nordita also organizes shorter conferences and workshops, sometimes in combination with the programs. These events can be arranged on short notice, which provides researchers with an excellent opportunity to gather together experts on subjects they are currently working on. The flexibility of these events also makes them suitable for rapid response to unexpected and recent developments. In recent years, the total number of participants in scientific events at Nordita has averaged at about 1000 per year. About 40–50% of the participants are from the Nordic countries.

During the years 2010 - 2014, Nordita organized a total of 53 conferences and 10 schools. The attached document "Nordita Conferences and Workshops 2010-2014" lists all events organized by Nordita during the last five years. More expanded information on Nordita conferences is available at http://www.nordita.org/science/workshops/list_of_workshops/index.php. For a full list and description

of workshops and conferences, see Appendix D below.

Nordic Networks

The purpose of Nordic Networks is to coordinate efforts in selected research areas within the Nordic region. Network activities can for example involve a series of Nordita workshops or programs in a particular area of research, or coordinated visits to Nordita by network participants. Normally, a Nordic Network is organized by a member of the Nordita faculty in collaboration with researchers at Nordic universities. A very successful example for this activity is the longstanding Nordic Network in String and Gauge Theory that Paolo Di Vecchia has coordinated. This network has brought together Nordic researchers and students for short meetings once or twice a year since 1994, and has been very important to the Nordic string theory community. It has also attracted attention from outside the region with research groups in England, Germany, and the Netherlands actively participating in network meetings. A successful series of Nordic workshops on Statistical Physics is run jointly by Nordita and Aalto University on an annual basis.

Advanced Schools

Nordita has a long tradition of organizing schools for Nordic graduate students in different subfields of astroparticle physics. Following its move to Stockholm, Nordita has introduced a series of annual Winter Schools run for two weeks in January. The first school was in 2010 on astrophysical dynamos, the second in 2011 on condensed matter physics, the third in 2012 on theoretical particle physics, the fourth one in 2013 on high-energy astrophysics, and the fifth one in 2014 on condensed matter physics.

These winter schools have included several series of overview lectures covering a given area of theoretical physics along with more advanced lectures on the most recent and exciting developments in that area. Such courses can rarely be held at a single university because of the small number of students that could follow them, but they can be organized at the Nordic level by collecting together students from universities in all the Nordic countries.

Master Class

For many years Nordita has organized a one-week Master Class for undergraduate students in the Nordic and Baltic countries. The aim of the school is to provide young students with an overview of exciting recent developments in theoretical physics that would normally not be part of the regular undergraduate curriculum at their home university. The goal is to inspire young minds and encourage them to undertake further studies. The lectures are given by internationally recognized experts in the various fields. The lecturers are selected for their pedagogical skills as well as excellence in research. The lectures have covered as diverse topics as cosmology, the physics of climate, quantum optics, Higgs boson physics, topological aspects of condensed matter physics, and planet formation, just to mention a few. To further engage the students, they are placed in small groups, working together to solve assigned

problems based on the lectures of the day, and discuss with the lecturers.

Please specify the number of workshops with invited speakers, conferences and other academic events organised by the institution:

Conferences	53
Schools	10
Programs	38
Total	101

6. INFRASTRUCTURE AT THE NORDIC CO-OPERATION BODY

Please give a short description of your research infrastructure.

Nordita is presently housed in two buildings directly adjacent to the AlbaNova University Center of Stockholm University, where the university's natural sciences are located. Nordita has full access to the scientific library at AlbaNova and online journal access through the University network.

Computing service and support at the institute is provided by Hans von zur-Mühlen (full time) and Iouri Belokopytov (20%). This service includes database interfaces for organization and administration of scientific events, as well as tools to plan, request, and approve event budgets. It also offers a well-maintained internal website that is used for recruitment, contains the institute's logos as well as templates for letter heads and presentations, and miscellaneous other information, forms, and materials for employees. Travel requests and reimbursements are processed through the KTH website, where all Nordita employees have an account.

The institute organizes regular seminar series (see Appendix F), some of which are shared with the local department at the AlbaNova University Center comprising the physics departments of Stockholm University and KTH. Nordita also has an institute-wide internal seminar series which is held once per month. Its purpose is to encourage exchange between the various disciplines represented at the institute and to support social cohesion. Nordita's extensive visitor program and the many scientific events running throughout the year which brings in many well-known experts further contribute to a stimulating research environment.

Additional hardware resources for computationally heavy numerical simulations that exceed the possibilities of the local network exist at the Center for High Performance Computing at KTH, the High Performance Computing Center North in Umeå, the National Supercomputing Center at Linköping University, and the Nordic High Performance Computing Center in Reykjavik.

7. GOVERNANCE OF THE NORDIC CO-OPERATION BODY

Please describe briefly the governance model of the Nordic co-operation body, including its formal status within the host university.

Nordita Board

Nordita has a governing Board (see Appendix I1), appointed jointly by the Presidents of KTH Royal Institute of Technology and Stockholm University for a three year term, with one representative and one alternate member from each of the five Nordic countries, nominated by the respective research councils, and a chairman who is nominated by the joint committee of the Nordic Natural Science Research Councils, NOS-N. The tasks of the Board include long-range planning, approval of the annual budget, and decisions about appointments of scientific staff following an agreed-on procedure with the host universities.

Director

The Board nominates the Director (currently Prof. Katherine Freese), who is appointed by the presidents of Stockholm University and KTH for a three-year term. The Director is responsible for the day-to-day administration of the Institute and provides scientific leadership, and is supported by the Deputy Director (currently Prof. Axel Brandenburg).

Research Committees

In addition to the Nordic governing Board (see Appendix I.3), the Nordic physics community provides direct input into Nordita's scientific activities through four Research Committees, each of which has five Nordic physicists who are experts in a given area of research. Nordita faculty members working in the area in question participate in the work of the Research Committees. The four committees are astrophysics and astrobiology, condensed matter, statistical and biological physics, high energy physics, and gravitation and cosmology. Their tasks include evaluating post-doctoral fellowship applications and providing expert advice in their respective areas.

Scientific Advisory Committee

Nordita also has a Scientific Advisory Committee (see Appendix I.2) of prominent scientists from the international physics community, appointed for three year terms. The SAC meets in Stockholm every

two years to review and comment on a wide range of issues concerning Nordita and provide input into the research strategy and future plans of the Institute.

Formal Status within Host Universities

Nordita is jointly hosted by Stockholm University and KTH, but acts independently in decisions regarding research and personnel strategy. With the 2007 move to Stockholm, the two host universities pledged to cover housing costs at the AlbaNova University Centre in Stockholm (currently about 3 million SEK/year) and to provide certain administrative services free of charge (accounting, personnel services, etc.). Furthermore, university overhead charges are reimbursed on external funding obtained by Nordita which is indirect financial support to the Institute. In the organizational structure of KTH, Nordita is placed directly under the president of KTH and is not part of any other of the university's schools or departments.

Administration

The local administration consists presently of

- A key administrator (Persson Söderlind), responsible for all financial matters and for communication with KTH administration
- A scientific program coordinator (Yang) responsible for the administration of the scientific programs and visitor arrangements related to these programs
- One person (Jifält) in Human Resources responsible for employments, travel and visitor arrangements
- One computer assistant (von zur- Mühlen) responsible for web page content and functionality of the public and internal computer network and resources
- One computer and network specialist (Belokopytov) on 20%.

Nordita engages student assistants from the local university when extra staff is needed for short periods of high intensity, in particular in connection with scientific meetings.

---

8. OUTPUT AND DISSEMINATION OF RESEARCH

Report the output of the research at the Nordic co-operation body, e.g. publications, reports and outreach activities. Also, report the number of Open Access publications.

Please attach a complete publication list (template provided in "Annex: Standard report format of academic output")

Outreach and Dissemination

Peer reviewed Publications / of which Open Access	481/442
Non peer-reviewed Publications / of which Open Access	87/77
Reports	16
Invited conference presentations	268
Conference presentations, oral / poster	117
Number of appearances in media	50
Outreach and dissemination to the public	45

In addition to the scientific achievements, please provide information on possible results that may open opportunities for important industrial, social or cultural dividends.

The following recent research results have a high potential to lead to applications in the short term:

1. Models of DNA translocation through graphene membranes, as a potential next generation DNA sequencing technology (Balatsky); cf. Ref. [10] of the complete list of publications in Appendix E.
2. Models of possible water purification using graphene membranes (Balatsky); cf. Ref. [163] of the complete list of publications in Appendix E.
3. Models of solar activity aiming at better predictions of solar eruptions and solar wind which can interrupt flight traffic (Brandenburg et al); cf. Ref. [303] of the complete list of publications in Appendix E.
4. Using statistical physics methods in financial mathematics to identify signatures of abrupt changes that could indicate imminent crisis (Balasky, Yasser, et al); see Ref. [35] of the complete list of publications in Appendix E.
5. Mechanical separation of enantiomers in microfluids that can make easier the synthesis of certain types of drugs (Eichhorn et al); see Refs. [209,238,270,309,413,431] of the complete list of publications in Appendix E.

Basic research can lead to serendipitous discovery and unforeseeable positive consequences. Fundamental physics research in particular has led to the invention of the transistor, the laser, magnetic resonance imaging, and many others. Studies of what the Universe is made of, e.g., may lead to world-changing

perspectives not only fundamentally altering how we perceive of our own place in this universe, but also practical advances that are as yet unknowable. Nordita has always been at the forefront of developments in theoretical physics and it is today, branching out to new important areas of research.

9. BUDGET AND FINANCES OF THE NORDIC CO-OPERATION BODY

Please describe briefly how the Nordic co-operation body is financed, including external funding. For details, please refer to your latest annual reports.

Budget 2015 (Decided at the board meeting Dec, 2014)

Income

Balance from 2014	775
NMR	11150
VR Base funding	7000
VR and Granholms foundation (Staff projects)	14040
ERC (Balatsky and Zarenbo)	6050
ITN	637
KAW	2338
Norwegian Research Coucil	802
Workshop funding(ESF,VR etc.)	550
Nordita overhead on projects	5116
Financial income	100
Total external funding	**48558**
From SU/KTH	4000
Total income	**52558**
Costs	
Centre for condensed matter (Balatsky)	1000
Scientific staff	7643
Administrative staff	3322
Fellows	4190
Project funded staff	20351

Total cost salaries and centre	35506	
Programs	2700	
Workshops	725	
Schools	300	
Guests	450	
Visiting PhD students	150	
Total cost activities	4725	
Travel (Staff, administration and fellows)	960	
Project funded travel	1206	
Total travel expenses	2166	
Board and committees		200
Recruitment	150	
Commuting	450	
Marketing	500	
Copenhagen	240	
Project expensed	1210	
Operation costs	1200	
Depreciations	30	
Total other expenses	*3980*	
To reserves	5180	
Total costs	**52557**	

Appendices

Content

A. Brief Curricula Vitae of Key Staff: CVs of Katherine Freese, Axel Brandenburg, Alexander Balatsky, John Wettlaufer, Konstantin Zarembo, Anders Rosengren, Paolo DiVecchia, John Hertz, Christopher Pethick, Ulf Wahlgren, John Hertz, David Abergel, Sabine Hossenfelder, Ralf Eichhorn, Dhrubaditya Mitra, Monica Guica, Henrik Johansson, Persson-Soderlind, Anne Jifält, Elizabeth Yang, Iouri Belokopytov, Hans von zur-Mühlen, and Helle Kiilerich.

B. Researcher mobility

- B1. Visiting PhD students at Nordita
- B2. Visits by Nordita scientists
- B3. Nordita visitor program
- B4. Visits to Nordita programs

C. Training courses and and recruited PhD students and post-docs

D. List of all programs, conferences, workshops, and school

E. Complete list of publications (List of all 481 refereed papers and 28 conference papers)

F. Weekly events organized or co-organized by Nordita

G. Nordita Today and Tomorrow (strategic document)

H. Annual Reports

I. Nordita committees

J. List of Nordita Alumni now in Nordic academic positions

For a link to the 2015 Nordita brochure, we refer to
`http://www.nordita.org/docs/nordita_brochure_2015_1.pdf`

KATHERINE FREESE

Director of Nordita, Nordic Theoretical Physics Institute, Stockholm, Sweden

Education

Massachusetts Institute of Technology 1973-1974
Princeton University, B.A. in Physics 1977
Columbia University, M.A. in Physics 1981
University of Chicago, Ph.D. in Physics 1984, Advisor: Dr. David Schramm

Positions

2014-- : Director, Nordita, the Nordic Theoretical Physics Institute in Stockholm
2014-- : Professor of Physics, Stockholm University
2009-- : George E. Uhlenbeck Professor of Physics, University of Michigan
1999-2009: Professor of Physics, University of Michigan
1991-99: Associate Professor of Physics (with tenure), University of Michigan
1988-91: Assistant Professor of Physics, Massachusetts Institute of Technology
1987-88: Presidential Fellow, University of California, Berkeley
1985-87: Postdoctoral fellow, Institute for Theoretical Physics, University of California, Santa Barbara, CA
1984-85: Postdoctoral fellow, Harvard Center for Astrophysics

Awards and Honors

2013: Invited lecture at the Carl Friedrich von Siemens Foundation at the Nymphenburg Castle in Munich
2012: Honorary Doctorate (Honoris Causa) at the University of Stockholm
2012: Simons Foundation Fellowship in Theoretical Physics
2009--: Fellow of the American Physical Society
2009--: Named George E. Uhlenbeck Professor of Physics
2006-2007: Miller Professor, University of California, Berkeley, CA
1990-1995: National Science Foundation Presidential Young Investigator Award
1989-1991: Sloan Foundation Fellowship
1986: Presidential Fellowship, University of California
1983-1984: William Rainey Harper Fellowship at the University of Chicago

Board Memberships and Professional Affiliations
2009--14: Member of the International Advisory Board, Oskar Klein Center for Cosmoparticle Physics, Stockholm, Sweden
2003--12: Associate Director, Michigan Center for Theoretical Physics
2011--12: Member of the Executive Board of the American Physical Society
2008--12: General Councilor, American Physical Society
2005-2008: Board Member, Astronomy and Astrophysics Advisory Committee (AAAC) reporting to US Congress
2000-2003: Board Member and Member of Steering Committee, Kavli Institute for Theoretical Physics, Santa Barbara, CA
1990-2000: General Member of the Board, Aspen Center for Physics
2000-2003: Member of the Executive Committee, Michigan Center for Theoretical Physics
Member: American Physical Society, American Astronomical Society, American Geophysical Union, American Women in Science, American Association for the Advancement of Science, American Association of University Women, American Association of University Professors

Other Activities
2012: Visitor, CERN, Geneva, Switzerland
2012: Visiting Professor, Caltech, Pasadena, CA
2011: Visiting Professor, University of Texas, Austin, TX
2007-2008: Visiting Professor, Perimeter Institute for Theoretical Physics, Waterloo, Canada
2002: Visiting Professor, ISCAP (Institute for Strings, Cosmology, and Astroparticle Physics), Columbia Univ., NY
Fall 2002: Organizer and participant of six month Workshop on ``The New Cosmology Confronts Observation'', KITP (Kavli Institute for Theoretical Physics), Santa Barbara, CA
1999-2000: visiting scientist, Max Planck Institut fuer Physik und Astrophysik, Munich, Germany
1997: Senior Program Officer, Board of Atmospheric Sciences and Climate, National Research Council, National Academy of Sciences, Washington, D.C.

Invited Talks
K. Freese has presented 230 talks around the world: 90 talks at conferences (including the U.S., Italy, France, Germany, Sweden, England, Portugal, Denmark, Canada, and Japan), 60 colloquia at Physics and Astronomy Departments in the US, Europe, and Japan, and 80 research seminars.

Publications
K. Freese has 175 publications: 130 in refereed journals including Physical Review Letters, Astrophysical Journal Letters, Astrophysical Journal, Physical Review D, Physics Letters, Nature, Geophysical Research Letters, Monthly Notices of the Royal Astronomical Society, JHEP, JCAP, and Nuclear Physics B; and 45 conference proceedings.

Book
Freese has written a book entitled *The Cosmic Cocktail: Three Parts Dark Matter* published by Princeton University Press in June 2014.

Press Coverage
The work of K. Freese has been covered in numerous press and magazine articles including New York Times, Scientific American, Sky and Telescope, Nature News, Science et Vie, Boston Globe, Dallas Morning News, and New Scientist.

Audio and Video:
Freese has appeared on National Public Radio, Quirks and Quarks on CBC radio, TV Ontario, Big Think, Coast to Coast AM, APS podcast on Physics Central, Groks Science, Virtually Speaking Science; these interviews can be found on youtube. Freese has also participated in televised panels from the World Science Festival in NY; the Isaac Asimov Memorial Debate Panel at the Museum of Natural History in New York; the Quantum to Cosmos Festival at Perimeter Institute in Canada; and a panel at the New York Academy of Sciences. Freese has twice been videotaped for the television program "Through the Wormhole with Morgan Freeman;" the first of these two episodes aired in July, 2012 and the second in July 2014.

Webpages
Homepage: http://www-personal.umich.edu/~ktfreese/
Wikipedia Page: http://en.wikipedia.org/wiki/Katherine_Freese

Languages
Fluent English and German, some French

Curriculum Vitae: Axel Brandenburg February 22, 2015

Born: 7 April 1959 in Heide, Federal Republic of Germany
Nationality: German
Marital status: Married, 1 child

Address

NORDITA, Roslagstullsbacken 23, AlbaNova University Center, 10691 Stockholm, Sweden
Telephone: +46 8 5537 8707, FAX: +46 8 5537 8404, mobile: +46 70 574 0650
e-mail: brandenb@nordita.org
http://www.nordita.org/~brandenb

Education

Dipl. Phys., University of Hamburg, January 1986, Diploma thesis: *Hydrodynamics of convective bubbles in linear approximation*

Lic. Phil., University of Helsinki, February 1989, Licentiate thesis: *Kinematic dynamo theory and the solar activity cycle*

Dr. Phil., University of Helsinki, May 1990, Doctoral dissertation: *Challenges for solar dynamo theory: α-effect, differential rotation and stability*

Employment

Sep. 1990 – Aug. 1992:	Postdoctoral Research Fellow, Nordita, Copenhagen
Aug. 1992 – Nov. 1992:	Visiting Fellowship, University of Cambridge
Dec. 1992 – Nov. 1994:	Postdoctoral Research Fellow, High Altitude Observatory/NCAR, Boulder
Dec. 1994 – Jan. 1996:	Nordic Assistant Professor, Nordita, Copenhagen
Feb. 1996 – Dec. 2000:	Professor of Applied Mathematics, University of Newcastle upon Tyne
Jan. 2000 – Dec. 2006:	Professor of Astrophysics, NORDITA, Copenhagen
since January 2007:	Professor of Astrophysics, Stockholm Observatory, NORDITA, Stockholm

Notable recognition

Elected foreign member of the Royal Swedish Academy's class for astronomy and space science (2014)

Major grants

- Research Council of Norway, FRINATEK research grant "Particle transport and clustering in turbulent flows" 231444, July 2014 – June 2017, 7.25 MNOK
- VR project grant, "Formation of active regions in the Sun" 2012-5797, January 2013 – December 2016, 4.2 MSEK
- VR project grant, "Turbulent dynamo simulation in a spherical shell segment" 621-2011-5076, January 2012 – December 2014, 1.65 MSEK
- ERC Advanced Grant, "Astrophysical Dynamos" No 227952, February 2009 – present, 2.22 MEuro.
- PPARC Research Grant, "Accretion Discs and Jets" PPA/G/S/1997/00284, 1998 – 2001, 270 kGBP.

Publications

Below are given the numbers of publications (published or in print) and the h indexes (both from the Astrophysical Data Service (ADS) and Google Scholar (GS); see also:
http://www.nordita.org/~brandenb/papers/pub/pub.html

Number of papers in refereed journals: 319, invited conference reviews: 37, proceedings papers: 85
Total number of citations: 13622, h-index: 59 (on Google Scholar)
Supervised: 9 PhDs, 11 post-docs

Fields of research

Astrophysical fluid dynamics, with emphasis on dynamo theory and turbulence theory. Particular interests: solar and stellar activity, helioseismology, convection, differential rotation, galactic turbulence and magnetism, accretion discs, fractals in turbulence, relativistic hydrodynamics, early universe, magnetospheric physics. Astrobiology, with emphasis on homochirality.

Influential papers

		citations		
paper:	#	WoS	ADS	GS
Beck et al. (1996)	A.58	568	621	839
Brandenburg & Subramanian (2005)	A.153	529	591	830
Brandenburg et al. (1995)	A.44	520	550	773
Brandenburg (2001)	A.98	296	331	475
Nordlund et al. (1992)	A.22	185	199	236
Brandenburg (2005)	A.145	174	185	262
Brandenburg et al. (1996)	A.52	157	160	221
Brandenburg et al. (1989)	A.3	142	142	156
Brandenburg et al. (1996)	A.54	133	145	194
Saar & Brandenburg (1999)	A.90	131	140	188
Haugen et al. (2004)	A.133	126	161	225

The numbers in the second column identify the paper as listed
at URL `http://www.nordita.org/~brandenb/papers/pub/pub.html`

Participation in research programs

Feb 2011 Turbulence Theory, 1 month (Santa Barbara)
Jun 2008 Dynamo Theory, 1.5 month (Santa Barbara)
Nov 2007 Star Formation through Cosmic Time, 1 month (Santa Barbara)
Sep 2004 Magnetohydrodynamics of Stellar Interiors, 3 months (Cambridge)
Apr 2000 Astrophysical Turbulence, 3 months (Santa Barbara)
Jun 2002 Dynamo Theory, 3 weeks (Aspen)
Jan 2002 Solar Magnetism and Related Astrophysics, 3 months (Santa Barbara)
Jan 1998 Dynamics of Astrophysical Discs, 3 months (Cambridge)
Aug 1992 Dynamo Theory, 3 months (Cambridge)

PhD students

Stephen J. Brooks:	1996–2000	(Newcastle upon Tyne)
Alberto Bigazzi:	1996–2000	(Newcastle upon Tyne and L'Aquila, Rome)
Maarit J. Korpi:	1997–1999	(Oulu U)
Nils E. L. Haugen	2000–2004	(Trondheim, NTNU)
Tarek A. Yousef	2000–2004	(Trondheim, NTNU)
Antony J. Mee	2002–2006	(Newcastle upon Tyne, co-supervisor)
Simon Candelaresi	2009–2012	(Stockholm U, Phil. Lic. in Feb. 2011)
Fabio Del Sordo	2009–2012	(Stockholm U, Phil. Lic. in Feb. 2011)
Koen Kemel	2009–2012	(Stockholm U, Phil. Lic. in Aug 2011)
Jörn Warnecke	2009–2013	(Stockholm U, Phil. Lic. in May 2011)
Sarah Jabbari	2012–	(Stockholm U)
Illa R. Losada	2013–	(Stockholm U)
Xiang-Yu Li	2014–	(Stockholm U)

Teaching experience

- *Astrophysical Fluid Dynamics* (7.5 ECTS) at Stockholm U, postgraduate level (2013)
- *Astrophysical Magnetohydrodynamics* (7.5 ECTS) at Stockholm U, master level (2012)
- *Solar Physics and Magnetohydrodynamics* (7.5 ECTS) at Stockholm U, postgraduate level (2009)
- *Pencil Code tutorials*, taught in Trieste (Italy, 2009) and Aussois (France, 2009)
- *Solar Physics*, (12 hours) at the IRF Kiruna (2005, 2006, 2007, 2008), postgraduate level
- *Planetary and Stellar Orbits*, (24 hours) at University of Newcastle upon Tyne (1998, 1999, 2000), second year students
- *Introduction to Astrophysical Fluids*, (24 hours) at University of Newcastle upon Tyne (1997, 1998, 1999), second year students
- *Fluid Flow and Cosmic Fluids*, (24 hours) at University of Newcastle upon Tyne (1997, 1998, 1999), third year students
- *Relativistic Fluid Dynamics and Visualization*, (24 hours) at Copenhagen University (1995/1996), shared with Åke Nordlund, postgraduate level

Other merits

Together with Wolfgang Dobler, I initiated the Pencil Code in 2001, which is a public domain program for solving partial differential equations on massively parallel supercomputers. It is since 2008 hosted through the subversion repository on Google Code, `http://pencil-code.googlecode.com/`

Administrative experience

2010–present	Deputy director of Nordita
2010–present	Editorial Board Member of Astron. Nachr.
2008–present	Chairman of the Swedish Astrobiology Network
2007–2009	Member of the AlbaNova/Nordita colloquium committee
2001	Director of the Helmholtz Summer School, Potsdam
2000–2002	Director of the Nordita Master Class

Public Outreach Experience

2010	Interview "Cycles of the Sun" (British Publishers) (`http://www.nordita.org/~brandenb/Solar_Activity_10.pdf`)
2008	Podcast *Is All Life Left-Handed?* (`http://www.astrobio.net/amee/summer_2008/Radio/radio.php`)
2005	Organizer of Meeting on Nordic Science Outreach (Copenhagen)
2005	Co-authored outreach articles with Anja Andersen (Kvant and BioZoom)
1990	Extended interview in Finnish Television (Prisma program, YLE)

A.V.Balatsky CV

Address: Nordita, Roslagstullsbacken 23, SE - 106 91 Stockholm, Sweden
Telephone: +46 8 5537 8707, FAX: +46 8 5537 8601
e-mail: balatsky@hotmail.com, balatsky@kth.se

Research Interests: DNA spectroscopy, Graphene, Superconductivity, superfluidity, quantum Hall effect, multiferroics, spintronics, noise spectroscopy.

Education and Training:
Undergraduate:Moscow Physical Technical Institute (1982)
Graduate: M.S., Physics, Moscow Physical Technical Institute (1984)
Ph.D. "Intrinsic Orbital Momentum in Superfluid He3,"Landau Institute (1987)
Postdoctoral: Physics, UIUC, LANL (1989-1993)

Research and Professional Experience:

Director, Institute for Materials Science, Los Alamos 2014-present

Professor, Theoretical Physics, KTH, NORDITA, Stockholm 2011-present

Theory Thrust Partner, Center for Integrated Nanotechnologies, LANL 2005-2012

Research Professor of Physics, Boston College, Boston, MA 2011-present

Chief Scientist, Center for Integrated Nanotechnologies (CINT)(acting), joint LANL-Sandia BES funded nanocenter, LANL 2004- 2005

Team Leader, Strongly Correlated Electron Systems, T-11, LANL 2004- 2012

Fellowship of Japanese Society for Promotion of Science, ERATO project, Y. Tokura and N. Nagaosa(Tokyo University) 2003- 2003

Staff member, LANL, Los Alamos, NM 1994 – 2004

J.R. Oppenheimer Fellow with K. Bedell, LANL 1991– 1994

Physics Department, University of Illinois at Urbana-Champaign, Urbana, IL, Postdoctoral Associate Visiting Research Assistant Professor with D. Pines. 1989– 1991

Landau Institute for Theoretical Physics, Moscow, USSR. 1985– 1989

Selected Publications 2006-2014

1. T. Wehling, A. Black-Schaffer, A.V Balatsky, "Dirac Materials", Advances in Physics, v 76, p1, (2014).

2. Das, Tanmoy; Balatsky, A. V., Engineering three-dimensional topological insulators in Rashba-type spin-orbit coupled heterostructures NATURE COMMUNICATIONS Volume: 4 , Aerticle 1972 DOI: 10.1038/ncomms2972 Published: JUN 2013

3. Ahmed Towfiq; Kilina Svetlana; Das Tanmoy; et al , Electronic Fingerprints of DNA Bases on Graphene, NANO LETTERS Volume: 12 Issue: 2 Pages: 927-931 (2012)

4. Hamidian Mohammad H.; et al.,"How Kondo-holes create intense nanoscale heavy-fermion hybridizationdisorder",PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA Volume: 108 Issue: 45Pages: 18233-18237, (2011)

5. Biswas, R. and Balatsky A. "Scattering from surface step edge in strong topological insulators, " PHYSICAL REVIEW B 83, p 075439, (2011)

6. 3. Biswas R.R., Balatsky AV, "Impurity-induced states on the surface of three-dimensional topological insulators", PHYSICAL REVIEW B 81**,** p 233405, **(**2010).

7. 4. Wehling, T.O.; Balatsky, AV; Katsnelson, MI; Lichtenstein, AI; Scharnberg, K; Wiesendanger, R, "Local electronic signatures of impurity states in graphene ", PHYSICAL REVIEW B;; v.75, no.12, p.125425, (2007)

8. 5. A.V. Balatsky I. Vekhter and J. X Zhu, "Impurity Effects in Unconventional Superconductors", Rev. Mod. Phys., v 78, 373, (2006).

9. 6. M.M. Qazilbash, M. Brehm, P.C. Byung-GyuChae, P.C. Ho, G.O. Andreev, Bong-jun Kim, Sun Jin Yun, A.V. Balatsky; M.B. Maple ; F. Keilmann, "Mott transition in VO_2 revealed by infrared spectroscopy and nano-imaging," Science; Dec; vol.318, p.1750-3, (2007).

10. 7. P. Philips and A.V. Balatsky, "Cracking the Supersolid", Science 316, 1435, (2007).

11. 8. H. Katsura, A. V. Balatsky, and N. Nagaosa,"Dynamical Magnetoelectric Coupling in Helical Magnets," Phys. Rev. Lett.**98**, 027203 (2007) .

12. Spin current and magnetoelectric effect in noncollinear magnets , Katsura H; Nagaosa N; Balatsky AV, PHYSICAL REVIEW LETTERS V95, 057205 (2005)

Collaborators and Co-editors: (last 48 months)S. Trugman (LANL), D. Arovas (UC San Diego), P. Littlewood (Cambridge University), A. H. MacDonald (UT Austin), J. Sauls (Northwestern), J.C. Davis (Cornell University), E. Abrahams (Rutgers University), S. Das Sarma(U Maryland), Y. Joglekar(IUPUI), H. Manoharan(Stanford), J. Fransson(Uppsala Univ), T.Das(Los Alamos), J.X. Zhu (Los Alamos), A. Black-Schaffer (Uppsala U), G. Volovik(Aalto U).

Graduate Students (last 5 years) H. Dahal BC summer student, summer 2006.RudroBiswas, Harvard University, Aug 2008-Sept 2009**;** R. Hembree, Hampden Sydney College, VA, June- Aug 2008**;** Tanwa Apronthip Washington Univ, St Louse, June-Aug 2008; C. Triola, College of W&M, Summer 203, 2014; S. Banerjee, KTH/Nordita, Sept 2014-present.

Postdoctoral Fellows (last 7 years) J.X. Zhu, PD 2001-2004(LANL), D. Morr, PD 2000-2002, UCI Assoc. Prof; Y. Joglekar, PD 2002-2005, IUPU, Associate Prof., Z. Nussinov, PD 2002-2005, Washington Univ, St Loius, Assoc, Prof., I. Grigorenko, PD 2006-2008, LANL, PD. J. Fransson, PD 2006-2008, Uppsala University, Associate Professor. H. Dahal- PD summer 2008-2010, APS Editor, J.J.

Su- 2008-2010, PD Stanford U., J.Haraldsen 2009-2011, PD at Los Alamos, T. Das, 2009-2011, PD at Los Alamos, H. She- 2011-2013, PD at Cornell, S.Borysov 2012-present KTH PD. F. Mancarella 2012-present, PD KTH. K. Zakharchenko-2013-present PD Nordita. T. Ahmed – 2012-present Los Alamos.

Graduate and Post-doctoral Advisors: M. Feigelman(Landau Inst), thesis advisor G.E. Volovik, Landau Institute for Theoretical Physics, Moscow, Russia. PD advisors: D. Pines, UIUC; K. Bedell, Boston College

Scientific Honors:

AAAS Fellow, Nov 2011;

American Physical Society Fellow, November 2003;

Los Alamos Fellow, Oct 2005;

J. Robert Oppenheimer fellowship at the Los Alamos National Laboratory 1991-1994;

Los Alamos National Laboratory Achievement Award, September 1997, March 2000;

Cyril Smith Scholar, Center for Materials Studies, LANL, Jan 99-Jan 00;

Senior Fellowship of Japanese Society for Promotion of Science, March-April 2003;

Ehrenfest Colloq, Leiden University, Feb2007.

Publications: Articles in Refereed Journals (published) > 260, h – 43, citations ~ 8200, Nature-6, Science-6, PNAS - 2, PRL's - 50

Number of Invited presentations ~ 150

Influential papers
Katsura, Nagaosa, Balatsky (2005) - 800 cits
Balatsky, Vekhter Zhu (2006) - 380 cits
Wehling et.al, (2007) - 120 cits
J. Lee, et al, (2006) - 220 cits
Balatsky,Salkola, Rosengren, (1995) 210 cits
Monthoux, Balatsky, Pines (1991) 380 cits

BIOGRAPHICAL SKETCH: John S. Wettlaufer

A. Professional Preparation

May 1985	B.Sc., Honors, Mathematics & Physics University of Puget Sound, Tacoma, Washington
August 1991	Ph.D. University of Washington, Seattle, Washington

B. Positions, Experience and Honors

Positions and Employment

9/1991 - 4/1993	Applied Physics Laboratory Fellow, University of Washington, Seattle, WA
5/1993 - 2/1997	Staff Physicist, Applied Physics Laboratory, University of Washington, Seattle, WA
11/1995 - 6/1998	Affiliate Assistant Professor, Department of Physics, University of Washington, Seattle, WA
2/1997- 2/1/2002	Senior Physicist, Applied Physics Laboratory, University of Washington, Seattle, WA
6/1998 - 12/2001	Affiliate Associate Professor, Department of Physics, University of Washington, Seattle, WA
1/1999 - 3/1999	JSPS Visiting Professor, Hokkaido University, Sapporo, Japan
1/2002 - 2/2008	Professor of Geophysics and Physics, Yale University, New Haven, CT
1/2002 -	Affiliate Professor, Department of Physics, University of Washington, Seattle, WA
7/2005 - 1/2006	Senior Visiting Fellow, Department of Applied Mathematics & Theoretical Physics, University of Cambridge, UK
7/2005 - 1/2006	Visiting Fellow Commoner, Mathematics, Trinity College Cambridge, UK
4/2007	Houghton Professor, Massachusetts Institute of Technology, Boston, Massachusetts, USA
7/1 - 12/2008	Visiting Professor, Nordic Institute for Theoretical Physics, Stockholm, Sweden (sabbatical)
6/2010-9/2011	Visiting Fellow, Oxford Centre for Collaborative Applied Mathematics, Mathematical Institute, University of Oxford, England
8/1 - 12/2011	Visiting Professor, Nordic Institute for Theoretical Physics, Stockholm, Sweden (sabbatical)
1/1-12/2012	Tage Erlander Professor, Nordic Institute for Theoretical Physics, Stockholm
2/2008 - 6/2014	A.M. Bateman Professor of Geophysics, Applied Mathematics & Physics Yale University, New Haven, CT
9/2013 - 7/2014	Professor of Applicable Mathematics, Mathematical Institute, University of Oxford, Oxford, UK (on unpaid leave from Yale)
9/2013 - 7/2014	Senior Research Fellow of Mathematics, Jesus College Oxford, UK
7/1/2014 -	Visiting Professor of Mathematics, Mathematical Institute, University of Oxford, Oxford, UK
7/1/2014 -	A.M. Bateman Professor of Geophysics, Mathematics & Physics Yale University, New Haven, CT
11/1/2014 -	Professor of Applied Mathematics & Theoretical Physics, Stockholm University, Stockholm, Sweden. On leave as Researcher to Nordic Institute for Theoretical Physics, Stockholm, Sweden

Other Experience and Professional Memberships

Inaugural Executive Committee of the American Physical Society's Topical Group on the Physics of Climate; Vice Chair (2013), Chair Elect (2014), Chair (2015).
Instrumentation Division Review Committee, Brookhaven National Laboratory (2015 -)
Brookhaven National Laboratory, Advisory Committee, Environmental, Biological and Computational Sciences Directorate (2013 -).
Wallenberg Foundation Advisor, Stockholm.
Simons Foundation Math-X Advisor.
American Physical Society, Fluid Dynamics Prize Selection Committee, (2012-14).
Brookhaven National Laboratory Science and Technology Steering Committee (2010 -).
Associate Editor, Journal of Fluid Mechanics (2009 -).

European Research Council: Referee & Advisor-European Centers of Excellence Program.
The Royal Society of London: Referee & Advisor.
Natural and Environmental Research Council of the UK: Referee & Advisor.
Engineering and Physical Science Research Council of the UK: Referee & Advisor.
Director, NORDITA Program: “Ice & Water in the Universe: from Astrobiology to Terrestrial Bodies”, Stockholm 15-26 September, 2008.
Director, Geophysical Fluid Dynamics Summer Program, Woods Hole Oceanographic Institution, Woods Hole, MA, 17 June – 28 August 2006.
Director, NATO-Advanced Study Institute: "Ice Physics in the Natural and Endangered Environment", Maratea Italy, 9-17 September, 1997.
Core Faculty Member of the Geophysical Fluid Dynamics Summer School, Woods Hole Oceanographic Institution, Woods Hole, MA.
Member: American Physical Society
Member: American Geophysical Union
Member: Society for Industrial and Applied Mathematics
Member: AGU Cryosphere Scientific Focus Group Executive Committee.
Member: AGU Committee on Nonlinear Geophysics.
Member: Technical Advisory Panel: RKK-SoilFreeze Technologies, LLC.
National Science Foundation Panel Member and Referee.
NASA Panel Member and Referee (Fluid Physics & Low Temperature Physics).
Consultant, Unilever Corporation.

Honors

2013	Royal Society of London Wolfson Research Merit Award
2014	Plenary Speaker, International Conference on the Physics & Chemistry of Ice
2013	John Carlson Lecturer, Lorenz Center, MIT
2012	Tage Erlander Professor, Swedish Research Council
2010	John Simon Guggenheim Fellow
2010	OCCAM Visiting Fellow, Mathematical Institute, University of Oxford
2008	Appointed A.M. Bateman Endowed Chair
2007	Houghton Lecturer, MIT
2005	Visiting Fellow Commoner, Trinity College, Cambridge
2003	Fellow of the American Physical Society
1999	The Japanese Society for Promotion of Science Visiting Professor
1996	Research Faculty Fellowship, University of Washington
1985	Sigma Pi Sigma; American Institute of Physics National Honor Society

C. Publications (Some 119 peer-reviewed publications, one book and one in progress)

https://scholar.google.com/citations?user=UmZ0DmoAAAAJ&hl=en&oi=ao

D. Description of Research Field

The scientific umbrella of soft condensed matter physics has expanded enormously in the past several decades. In contemporary departments of physical science, engineering and mathematics at major research universities the core approaches used by soft matter scientists span all modern methods in theoretical and experimental condensed matter physics. With the broad remit of the problems studied, approaches often extend well beyond traditional boundaries, drawing upon, among others, a spate of formal analytical methods, theoretical and computational hydrodynamics, chemical and materials experimentation and computational and observational science, to name just a few. Many fields that have become part of the rubric for soft matter physicists, which span many departmental boundaries, and my professional genesis has paralleled this development and involves close collaboration with experimentalists in many areas.

CURRICULUM VITAE

Konstantin Zarembo

Positions

2010-present: Professor, Nordita, Stockholm
2008-2010: Directeur de Recherche de 2$^{\text{ème}}$ classe du CNRS, École Normale Supérieure, Paris, France
2001-2010: Associate Professor; Assistant Professor, Uppsala University
1997-2001: Research Associate; Postdoctoral Fellow, University of British Columbia, Vancouver, Canada
1996-present: Researcher, Institute of Theoretical and Experimental Physics, Moscow, Russia

Education

Graduate, 1993-1997: Steklov Mathematical Institute, Moscow, Russia
Undergraduate, 1987-1993: Moscow Institute of Physics and Technology, Russia

Research Interests

Quantum Field Theory, String Theory.

Students

Ph.D. students:

- Valentina Giangreco Marotta Puletti, Ph.D. thesis "On string integrability" at Uppsala University (2009) (now Assistant Professor at the University of Iceland)
- Martin Lübcke, Ph.D. thesis at Uppsala University (2004)

Master Students:

- Pontus Leitz, "Quantum Computers and Factoring" Uppsala University (2012)
- Benjamin Audren, "Dark matter: experimental evidence, relic density, and the supersymmetric candidate", Uppsala University (2009) (now PhD student at École Polytechnique Fédérale de Lausanne)
- Olof Ohlsson Sax, master thesis "Fermi gas close to unitarity: ε-expansion," Uppsala University (2007) (now Postdoctoral Fellow at Imperial College, London)
- Andrés de Bustos Molina, "Ultra High Energy Cosmic Rays - The GZK Cutoff" Uppsala University (2005) (now at CIEMAT, Madrid)

Professional Services

2007-present: Editor of the *Journal of High Energy Physics*
2014: ERC Starting Grant Evaluation Panel, member.
2001-2005: Particle Physics Section of the Swedish Physical Society, member of the board.
Evaluation of applications for research funding: Refereed research proposals for national science foundations of Austria, Denmark, Georgia, Israel, Italy, Netherlands, Poland, Russia, and UK, as well as ERC grant applications.

Awards and Fellowships

2008-2010: The Royal Swedish Academy of Sciences Senior Research Fellowship
2004: Göran Gustafsson Prize for Young Researchers
1999-2001: Pacific Institute for the Mathematical Sciences Postdoctoral Fellowship
1997-1999: NATO Science Fellowship

Selected publications

1. K. Zarembo, "Strong-Coupling Phases of Planar N=2* Super-Yang-Mills Theory," Theor. Math. Phys. 181 (2014) 1522 [Teor. Mat. Fiz. 181 (2014) 464], 1410.6114.

2. J.G. Russo and K. Zarembo, "Evidence for Large-N Phase Transitions in $N = 2^*$ Theory," JHEP 04 (2013) 065, 1302.6968.

3. A. Buchel, J.G. Russo and K. Zarembo, "Rigorous Test of Non-conformal Holography: Wilson Loops in $N = 2^*$ Theory," JHEP 03 (2013) 062, 1301.1597.

4. A. Cagnazzo and K. Zarembo, "B-field in AdS_3/CFT_2 Correspondence and Integrability," JHEP 11 (2012) 133, 1209.4049.

5. G.W. Semenoff and K. Zarembo, "Holographic Schwinger Effect," Phys. Rev. Lett. 107 (2011) 171601, 1109.2920.

6. K. Zarembo, "Holographic three-point functions of semiclassical states," JHEP 09 (2010) 030, 1008.1059.

7. K. Zarembo, "Strings on Semisymmetric Superspaces," JHEP 05 (2010) 2, 1003.0465.

8. A. Babichenko, B. Stefanski and K. Zarembo, "Integrability and the AdS_3/CFT_2 correspondence," JHEP 03 (2010) 58, 0912.1723.

9. J. Minahan and K. Zarembo, "The Bethe ansatz for superconformal Chern-Simons," JHEP 09 (2008) 040, 0806.3951.

10. T. Klose, T. McLoughlin, R. Roiban and K. Zarembo, "Worldsheet scattering in $AdS_5 \times S^5$," JHEP 03 (2007) 094, hep-th/0611169.

11. N. Beisert, V.A. Kazakov, K. Sakai and K. Zarembo, "The algebraic curve of classical superstrings on $AdS_5 \times S^5$", to be published in Commun. Math. Phys., hep-th/0502226.

12. G. Ferretti, R. Heise and K. Zarembo, "New Integrable Structures in Large-N QCD," Phys. Rev. D70 (2004) 074024, hep-th/0404187.

13. V.A. Kazakov, A. Marshakov, J.A. Minahan and K. Zarembo, "Classical/quantum integrability in AdS/CFT," JHEP 05 (2004) 024, hep-th/0402207.

14. E. Langmann, R. J. Szabo and K. Zarembo, "Exact solution of quantum field theory on noncommutative phase spaces," JHEP 01 (2004) 017, hep-th/0308043.

15. N. Beisert, J. A. Minahan, M. Staudacher and K. Zarembo, "Stringing spins and spinning strings," JHEP 09 (2003) 010, hep-th/0306139.

16. J.A. Minahan and K. Zarembo, "The Bethe-Ansatz for $N = 4$ Super Yang-Mills," JHEP 03 (2003) 013, hep-th/0212208.

17. K. Zarembo, "Open string fluctuations in $AdS_5 \times S^5$ and operators with large R charge," Phys. Rev. D66 (2002) 105021, hep-th/0209095.

18. K. Zarembo, "Supersymmetric Wilson loops," Nucl. Phys. B643 (2002) 157, hep-th/0205160.

19. G.W. Semenoff and K. Zarembo, "More exact predictions of SUSYM for string theory," Nucl. Phys. B616 (2001) 34, hep-th/0106015.

20. K. Zarembo, "Possible pseudogap phase in QCD," JETP Letters 75 (2002) 59 [Pisma v ZhETF 75 (2001) 67], hep-ph/0104305.

21. M. Caselle, M. Hasenbusch, P. Provero and K. Zarembo, "Bound states and glueballs in three-dimensional Ising systems", Nucl. Phys. B623 (2002) 474, hep-th/0103130.

22. J.K. Erickson, G.W. Semenoff, K. Zarembo, "Wilson Loops in $N = 4$ Supersymmetric Yang-Mills Theory", Nucl. Phys. B582 (2000) 155, hep-th/0003055.

23. K. Zarembo, "Dispersion Laws for Goldstone Bosons in a Color Superconductor", Phys. Rev. D62 (2000) 054003, hep-ph/0002123.

24. A.A. Tseytlin and K. Zarembo, "Magnetic Interactions of D-branes and Wess-Zumino Terms in Super Yang-Mills Effective Actions", Phys. Lett. B474 (2000) 95, hep-th/9911246.

25. J.K. Erickson, G.W. Semenoff, R.J. Szabo and K. Zarembo, "Static Potential in $N = 4$ Supersymmetric Yang-Mills Theory", Phys. Rev. D61 (2000) 105006, hep-th/9911088.

26. K. Zarembo, "Wilson Loop Correlator in the AdS/CFT Correspondence", Phys. Lett. B459 (1999) 527, hep-th/9904149.

27. G. W. Semenoff and K. Zarembo, "Solitons on Branes", Nucl. Phys. B556 (1999) 247, hep-th/9903140.

28. A.A. Tseytlin and K. Zarembo, "Effective potential in non-supersymmetric $SU(N) \times SU(N)$ gauge theory and interactions of type 0 D3-branes", Phys. Lett. B457 (1999) 77, hep-th/9902095.

29. G.W. Semenoff and K. Zarembo, "Adjoint non-Abelian Coulomb gas at large N", Nucl. Phys. B480 (1996) 317-340, hep-th/9606117.

Curriculum vitae for Anders Rosengren

1. University degrees
   - Bachelor of Arts from the University of Lund, Sweden, October 31:st 1969
   - Bachelor of Science from the University of Lund, Sweden, August 31:st 1971
   - Master of Science from the University of Stockholm, Sweden, December 23:rd 1974
2. Doctor of Philosophy (Theoretical Physics) from the University of Stockholm, Sweden, December 12:th 1977, title of the thesis "Bulk properties of the Rare Earth and Related Metals", supervisor B. Johansson
3. Postdoctoral position at the Nordic Institute of Theoretical Atomic Physics, NORDITA scholarships, Copenhagen, 1976–1979
4. Senior Research Fellow (Docent) in Theoretical Physics at the University of Stockholm, Sweden, October 24:th 1985
5. Professor in Condensed Matter Theory, KTH, since May 1:st 1998
6. Previous positions
   - Guest professor at NORDITA, January 1:st until December 31:st 2007
   - Associate professor (bitr professor) at the Department of Physics/Theoretical Physics, KTH, December 1:st 1997 until April 30:th 1998
   - Associate professor (lektor) at the Department of Physics/Theoretical Physics, KTH, February 1:st 1990 until November 30:th 1997
   - Associate professor (lektor) at the Institute of Physics, University of Uppsala, June 1:st 1988 until July 31:st 1990
   - Researcher (forskare) at the Institute of Physics, University of Uppsala, October 1:st 1985 until May 31:st 1988
   - Research assistant (forskarassistent) at the Institute of Theoretical Physics, University of Stockholm, 1981–1986
   - Research assistant (forskningsassistent) at the Institute of Theoretical Physics, University of Stockholm, 1979–1981
7. Military service at the Swedish Army Language School, Uppsala, 1966-1967
8. PhD/Lic exams under my supervision
   - Gintautas Grigelionis, PhD, 1997
   - Ausrius Juozapavičius, PhD, 2001
   - Laura Gabriela Urba, Lic, 2001
   - Jurij Šmakov, PhD, 2003
   - Sara Bergkvist Sylvan, PhD, 2007
9. Postdocs in my group
   - Evaldas Tornau, 1993–1995
   - Saulius Lapinskas, 1993–1995
   - Igor Tupitsyn, 1994
   - Petras Kundrotas, 1995–1997
   - Sergio Caprara, 1996
   - Sergey Basylko, 2003–2005

10. Commissions of trust

- Director of the Graduate School Program in Materials Science at KTH, 1990–2000
- Director of postgraduate studies at the Department of Physics, KTH, February 1:st 1995 – September 30:th 1998
- Coordinator of the cooperation between KTH and Semiconductor Physics Institute (SPI), Vilnius, supported by The Swedish Institute, which had as one of its goals to build up a Graduate School Program in Materials Science at SPI, 1995 – 1999
- member of the Board of The School of Engineering Physics, July 1:st 1997 – September 30:th 1998
- member of the Nordic Council of Ministers steering committee for potential transfer transfer of NORDITA, 2005
- Deputy Head of Department of the Department of Theoretical Physics since 2006
- member of the VR selection panel NT-O, 2007
- outside expert in several evaluation committees for professorships and associate professorships
- Chairman of assessment committees for qualification as associate professor (docent)

11. Conference organization

- "10-ème Journées des Actinides", Stockholm, Sweden, May 27-28, 1980 together with B. Johansson and was editor of the proceedings
- "International Conference on Physics and Chemistry of Molecular and Oxide Superconductors" (MOS-99), Stockholm, 1999, member of the local organizing committee
- "Symposium on Correlated Electron Materials", Santa Fe, New Mexico, USA, 2008, editor of the proceedings
- "First Nordic Conference on Correlated Electron Systems", Uppsala, 2009, organizer
- "The influence of confinement on phase transitions", NORDITA Program, Stockholm, 2010, coordinator
- "Nordic Conference on Correlated Electron Systems (NCES2011)", Enköping, 2011, organizer

12. Awards

- elected Fellow of the American Physical Society
- Sigrid Arrhenius grant for the best thesis of the faculty, 1977

13. Other

- collaborator at Los Alamos National Laboratory, Los Alamos, New Mexico, USA
- Associate Editor of Philosophical Magazine, since July 1:st 1995

Paolo Di Vecchia, Emeritus Professor

Paolo Di Vecchia received his degree (Italian Laurea) at the University of Rome in 1966. After a post-doctoral fellowship at the Laboratori Nazionali di Frascati he was offered a permanent position there. After two-year positions at MIT and CERN he became Assistant Professor at Nordita, 1974-1978. After another year at CERN he became Professor first at the Freie Universität in Berlin in 1979 and then at the University of Wuppertal, 1980 to 1986. He came to Nordita in February 1986. Since November 2010 he is Emeritus Professor both at Nordita and at the Niels Bohr Institute in Copenhagen.

He has worked and continues to work on the theory of elementary particles by using perturbative and non-perturbative methods both in field and string theories. In recent years he has worked on high-energy scattering on Dp-branes, on connecting string theory with particle phenomenology and on soft behavior of gluons and gravitons.

Since 1994, he has coordinated the organization of Nordic meetings in field and string theory bringing together Nordic researchers and students at least once every year to learn about recent developments in the field. He has organized summer schools in field and string theory for Nordic students and supervised Nordic students. He was elected in 2003 member of the Det Kongelige Norske Videnskabers Selskab.

John A. Hertz **Curriculum Vitae**

Born 10 January 1945; Bethlehem, Pennsylvania, USA

B.A., Harvard College, 1966
M.S., University of Pennsylvania, 1967
Ph.D., University of Pennsylvania, 1970

Present positions:

Professor Emeritus, Nordita (Nordisk Institut for Teoretisk Fysik), Roslagstullbacken 23, 10691 Stockholm, Sverige
Professor Emeritus, Niels Bohr Institut, Københavns Universitet, Blegdamsvej 17, 2100 København Ø, Denmark
Visiting Professor, Institute for Neuroscience and Pharmacology, University of Copenhagen, 2200 København N, Denmark

telephone: [+45] 2055 1874
email: jhertz@nordita.org, hertz@nbi.dk
web: http://www.nordita.org/~hertz, http://www.nbi.dk/~hertz

Previous positions:

Niels Bohr Institut, Københavns Universitet, Professor, 2007-13,
Blegdamsvej 17, 2100 København Ø, Danmark
Nordita (Nordisk Institut for Teoretisk Fysik), Professor, 1980-2013,
Roslagstullbacken 23, 10691 Stockholm, Sverige
The James Franck Institute and Department of Physics, University of Chicago:
Assistant Professor, 1973-1980, Associate Professor, 1980
University of Cambridge, Cavendish Laboratory, Postdoc, 1971-73
University of Pennsylvania, Department of Physics, Postdoc, 1970-71

Longer visiting positions:

Xerox Palo Alto Research Center: Visiting Scientist, 1979
Institute for Theoretical Physics, University of California, Santa Barbara:
Visiting Scientist, 1983, 2001
Duke University, Department of Physics: Visiting Professor, 1988
National Institute of Mental Health, Bethesda MD: Visiting Scientist, 1992-93

Supervisor of PhD students:

Current:
Stojan Jovanovic (KTH Royal Institute of Technology and University of Freiburg, jointly with S Rotter)
Luiz Tauffer (KTH Royal Institute of Technology, University of Freiburg and University of Edinburgh, jointly with A Kumar and M Hennig)
Claudia Battistin (Norwegian University of Science and Technology, jointly with Y Roudi)

Past:
William Ridgway, University of Chicago, 1979
Vitor Rocha Vieira, University of Chicago, 1979
Anil Khurana, University of Chicago 1981
Anders Krogh, Københavns Universitet, 1991
Holm Schwarze Københavns Universitet, 1993
Troels Kjaer, Københavns Universitet, 1995 (jointly with B Richmond and H Hultborn)
Robert Urbanczik, University of Basel, 1995
Alexander Lerchner, Technical University of Denmark, 2003
Hongli Zeng, Aalto University, 2014 (jointly with M Alava)

Other research supervision:
16 MS students and 15 postdocs over a 20-year period

Honors
Sigma Xi (university of Pennsylvania chapter) research prize, 1971
Alfred P. Sloan Foundation Fellow, 1974--78

Research areas:
Neural Networks:
Dynamics of neural processing
Characterization and measurement of neural information transmission
Inference of network structure from electrophysiological recordings
Statistical mechanics and dynamics of glassy systems:
Applications to protein folding and dynamics
Molecular biological networks:
Statistical dynamics of gene networks
Stochastic dynamics of cell cycle, stem cell differentiation

Author of 148 articles on statistical and condensed matter physics and computational biology
Books: *Spin Glasses* (with K H Fischer, 1991);
Introduction to the Theory of Neural Computation (with A Krogh and R G Palmer, 1991)

Member of American Physical Society, Danish Physical Society, European Physical Society, Society for Neuroscience, Danish Society for Neuroscience

Review activity:
Divisional Associate Editor, Physical Review Letters, 2006 –
Past member of Editorial Board:
Europhysics Letters
European Journal of Physics B
Cognitive Neurodynamics
Reviewer for Physical Review E, Physical Review Letters, Journal of Neuroscience, Journal of Neurophysiology, Journal of Computational Neuroscience, Neural Networks, Cerebral Cortex, Neural Computation, other journals and conferences

Reviewed research proposals for BBSRC and EPSRC (UK), NSF (USA), Israel Science Foundation, Binational Science Foundation (Israel-USA), Bundesministerium für Bildung und Forschung (Germany)

Member of committees to evaluate applicants for research or university positions (>15, 1985–present)

Administration and organization:

Staff representative on the Nordita governing board, 1987 –2010

Organizer or co-organizer of >15 conferences or summer schools since 1981

Christopher Pethick

Date of birth: 22 February, 1942.
Citizenship: U. K.
Education: B. A., Oxford University, 1962.
M. A. and D. Phil., Oxford University, 1965.

Present position:
Emeritus Professor of Physics, NORDITA and University of Copenhagen.

Previous Positions:
Research Fellow, Magdalen College, Oxford, 1965-1970.
Research Associate, University of Illinois, 1966-1968.
Research Assistant Professor, University of Illinois, 1968-1969.
Associate Professor, University of Illinois, 1970-1973.
Visiting Professor, Nordita, 1970 and 1974.
Professor of Physics, University of Illinois, 1973-1995.
Professor of Physics, NORDITA, 1975-2010.
Director, Nordita, 1989-1994.

Visiting Positions:
Visiting researcher at the L. D. Landau Institute for Theoretical Physics, Moscow, 1973-1974.
Visiting scientist at the Institute for Nuclear Theory, Seattle, 1995.

Membership of Boards (partial list):
Founding Member of the Board of the European Centre for Theoretical Studies in Nuclear Physics and Related Areas (ECT*), Trento, 1992-1997.
Associate Editor, Reviews of Modern Physics, 1996-1999.
Member of the National Advisory Committee for the Institute for Nuclear Theory, Seattle, USA, 1997-1999.
Member of Editorial Board, Physical Review A, 2004-2010.

Conferences and workshops organized (recent examples):
Doctoral Training Programme on "Strongly correlated quantum systems", ECT*, Trento, 29 March - 19 June 2009.
CompSchool 2009: Summer School on "Stellar Collapse, Compact Objects, Supernovae, and Gamma-Ray Bursts", Copenhagen, 17-21 August 2009.

Workshop on "Microphysics in Computational Relativistic Astrophysics, MICRA2009", Copenhagen, 24-28 August 2009.
Workshop on "Frontiers in Quantum Gases Liquids and Solids", Stockholm, 9-20 August 2010.
Workshop on "Pushing the Boundaries with Cold Atoms", Stockholm, 21 January -15 February 2013.

Honors and Awards:
A. P. Sloan Fellow, 1970-1972.
Foreign Member, Royal Danish Academy of Sciences and Letters, 1977.
Foreign Member, Royal Norwegian Society of Sciences and Letters, 2003.
Fellow, American Physical Society, 1985.
Lars Onsager Prize of the American Physical Society, 2008.
Hans Bethe Prize of the American Physical Society, 2011.
Foreign Honorary Member, American Academy of Arts and Sciences, 2013.

Research interests:
Theoretical physics, especially many-body problems in physics and astrophysics. Quantum liquids, dense matter in astrophysics, and ultracold atomic gases.

CURRICULUM VITAE

Name: Wahlgren, Ulf Ivar Sörensson

Born: 1 May 1944 in Lidköping, Sweden

Citizenship: Swedish

Marital status: Married, four children 26, 24, 16 and 3 years old

Degrees:

1. Matriculation (Studentexamen) at Högre allmänna Läroverket i Brännkyrka, 1962
2. BA (Fil.kand) in Mathematics, Physics and Theoretical physics at Stockholm University 1966
3. PhD in Theoretical physics at Stockholm University 1972

Other:

Employment's

1. Assistant/amanuensis during different periods 1965-1972
2. Post Doc. with prof. J.P.Dahl at the Technical University of Denmark, Lyngby, Denmark, December 1972-January 1973
3. Post Doc. with Dr. P.S.Bagus at IBM research centre, San Jose, USA 1973-1974
4. Research assistant at the Institute for Quantum Chemistry University of Uppsala 1974-1975\par
5. Employed at the Swedish Water and Air Pollution Research Institute 1976-1984. Responsible for the computer and the mathematical modelling group and later for the Water division
6. Adjoint professor in Theoretical Chemistry at the University of Tromsö 1980-1984 (20 %)
7. Adjoint professor in Atmospheric Chemistry at the University of Gothenburg 1983 (20 %)
8. Docent at the institute of Theoretical Physics, University of Stockholm, 1984-1986
9. Associate professor (in Swedish Högskolelektor) at the institute of Physics, University of Stockholm, since 1986
10. Adjoint professor in Theoretical Chemistry at the University of Tromsö 1997- 2001 (20 %)
11. Professor at the institute of Physics, University of Stockholm, since February 2000
12. Director of AlbaNova Physics Center 1999-2013
13. Director of Nordita, 2006-2007
14. Deputy director of Nordta 2007-2013

David Abergel

Curriculum Vitæ

Feb 19th, 2014

Nordita,
Roslagstullsbacken 23,
SE-106 91 Stockholm,
Sweden.
david.abergel@nordita.org

Highlights

Major review *Properties of graphene: a theoretical perspective*, Adv. Phys. **59**, 261 (2010).

Phys. Rev. Lett. *Long-range Coulomb interaction in bilayer graphene*, Phys. Rev. Lett. **102**, 056807 (2009).

Phys. Rev. Lett. *Detection of the electron spin resonance of two-dimensional electrons at large wave vectors*, Phys. Rev. Lett. **96**, 126807 (2006).

Invited talk Invited talk at 2011 APS March Meeting.

Recent work See New J. Phys **16**, 065012 (2014). and Phys. Rev. B. **88**, 235402 (2013).

Personal Information

Full name David Stephen Lyne Abergel **Nationality** British

Date of birth November 27th, 1981

Employment History

2013–Present **Assistant Professor**, Nordita.

2010–2013 **Research Associate**, *Prof. Sankar Das Sarma*, University of Maryland.

2007–2010 **Post-doctoral Fellow**, *Prof. Tapash Chakraborty*, University of Manitoba.

Education

2004–2007 **Doctorate**, *Lancaster University*, Lancaster, UK.
Ph.D in Physics. Thesis title: *Dynamics of nanostructures of new materials: Semiconductor quantum wells and graphene*, under the supervision of Prof. Vladimir Fal'ko.

2000–2004 **Degree**, *Lancaster University*, Lancaster, UK.
MSci in Theoretical Physics with Mathematics. First class with Honours.

Teaching experience

Lecturing Taught course at 2014 Nordita Winter School on condensed matter physics.

Supervision of students As of the fall 2012, I shall be assisting with the supervision of postgrad students in the CMTC group.

Marking Extensive marking of undergraduate assignments and interaction with lecturers regarding marking schemes and student feedback.

Classroom assistance Assisting with undergraduate example classes and computer labs.

Course materials Writing extensive and detailed course materials for undergraduate classical mechanics.

Tutoring One-on-one tutoring of A-level candidates.

Professional Service

Lead organizer of 2014 Nordita Winter School, Jan 2014.

Organizer of Nordita workshop "Dirac Materials, Superconductivity and Hybrid Nanostructures", June 2014.

Organizer of Nordita program "Physics of Interfaces and Layered Structures", Aug-Sept 2015.

Faculty observer to the Nordita board.

Seminar coordinator for CMTC.

Regular reviewer for Nature journals, Phys. Rev. Lett., Phys. Rev. B, Sci. Rep., Appl. Phys. Lett., IOP journals, and Physica E.

Invited talks and conference presentations

September 2014 — **Nordita program – Computational Challenges in Nuclear and Many-Body Physics**, *Stockholm, Sweden.*
'Disorder in bilayer and double layer graphene'

August 2014 — **Carbonhagen '14 – Contributed talk**, *Copenhagen, Denmark.*
'The role of spin-orbit coupling in topologically protected interface states in Dirac materials'

May 2014 — **Niels Bohr Institute – Invited talk**, *Copenhagen, Denmark.*
'Excitonic condensation in double layer graphene'

March 2014 — **University of Maryland – Invited talk**, *College Park, MD, USA.*
'Excitonic condensation in double layer graphene'

March 2014 — **APS March Meeting – Contributed talk**, *Denver, CO, USA.*
'Linearly dispersing plasmons in monolayer transition metal dichalcogenides'

February 2014 — **Washington University – Invited talk**, *St Louis, MO, USA.*
'Disorder in graphene systems'

February 2014 — **Towards Reality in Nanoscale Materials VII – Contributed talk**, *Levi, Finland.*
'Excitonic superfluidity in double layer graphene'

October 2013 — **Albanova CM seminar – Invited talk**, *Stockholm, Sweden.*
'Disorder in graphene systems'

March 2013 — **APS March Meeting – Contributed talk**, *Baltimore, MD, USA.*
'2D compressibility of surface states on 3D topological insulators'.

September 2012 — **NRI-SWAN review – Invited talk**, *Austin, TX, USA.*
'Charge inhomogeneity and the formation of exciton condensates in double layer graphene'.

March 2012 — **APS March Meeting – Contributed talk**, *Boston, MA, USA.*
'Disorder-induced inhomogeneity in bilayer graphene'. Also session chair.

December 2011 — **ONR/AFOSR Joint Graphene Review – Invited talk**, *Monterey, CA, USA.*
'Disorder in graphene'.

September 2011 — **NRI-SWAN review – Invited talk**, *Austin, TX, USA.*
'Disorder in bilayer graphene'.

March 2011 — **APS March Meeting – Invited talk**, *Dallas, TX, USA.*
'The compressibility of graphenes and the effect of disorder'.

Other conferences attended

Dec 2012 — **ONR/AFOSR Joint Graphene Review**, *Arlington, VA, USA.*

Jan–March 2012	**'Graphene program'**, *KITP, Santa Barbara, CA, USA.*
Dec 2011	**ONR/AFOSR Joint Graphene Review**, *Boston, MA, USA.*
April 2009	**'Graphene Week 2009'**, *Obergurgl, Austria.*
Sept–Oct 2006	**'Dynamics and Relaxation in Complex Quantum and Classical Systems and Nanostructures'**, *MPIPKS, Dresden, Germany.*
Sept 2006	**'Graphene conference'**, *MPIPKS, Dresden, Germany.*
July 2006	**'College on Physics of Nano-Devices'**, *ICTP, Trieste, Italy.*
August 2005	**'Conference on Strongly Interacting Systems at the Nanoscale'**, *ICTP, Trieste, Italy.*

Sabine Hossenfelder

Curriculum Vitae

(Status January 2015)

Surname:	Hossenfelder
First Names:	Sabine Karin Doris
Place of Birth:	Frankfurt am Main / Germany
Date of Birth:	September 18, 1976
Nationality:	German
Family Status:	Married, 2 children (* December 29, 2010)
Languages:	German (native), English (fluent), French (if necessary)
Address:	Nordita, The Nordic Institute for Theoretical Physics Roslagstullsbacken 23 106 91 Stockholm, Sweden
Phone:	+ 46 - 8 - 5537 8754
Fax:	+ 46 - 8 - 5537 8404
Email:	hossi@nordita.org

Education:

- Aug 2003: Ph. D., Theoretical Physics,
  J. W. Goethe Universität Frankfurt (Germany),
  'mit Auszeichnung' (excellent)
  Adviser: Prof. Dr. H. Stöcker
  Topic: "*Black Holes in Large Extra Dimensions*"

- Aug 2000: Diplom (M.S.), Physics,
  J. W. Goethe Universität Frankfurt (Germany),
  'mit Auszeichnung' (excellent)
  Adviser: Prof. Dr. Dr. hc. mult. W. Greiner
  Topic: "*Particle Production in Time Dependent Gravitational Fields*"

- July 1997: Vordiplom (B.S.), Mathematics,
  J. W. Goethe Universität Frankfurt (Germany),
  'sehr gut' (very good)

Employment:

- 09/2009 - 10/2015: Assistant Professor at Nordita, Stockholm, Sweden

- 11/2010 - 03/2012: Parental leave
- 09/2006 - 08/2009: Postdoc at Perimeter Institute, Waterloo, Ontario, Canada
- 09/2005 - 08/2006: Postdoctoral Research Fellow, Department of Physics, University of California, Santa Barbara
- 2004-08/2005: Postdoctoral Research Fellow, Department of Physics, University of Arizona
- 2003-2004: Research Fellow of the GSI (Heavy Ion Society), Darmstadt, Germany
- 1999-2001: Instructor/Teaching Assistant for courses in mechanics, electrodynamics and quantum mechanics at Frankfurt University
- 1997-1999: Research Graduate Student at Frankfurt University, Germany.

Honors, Awards, Grants:

- 1st prize of the 2014 essay contest of the Foundational Questions Institute[1]
- US$ 25,000 from the Franklin Fetzer Fund[2] to support the 2014 "Workshop for Science Writers: Quantum Theory"
- SEK 70,000 from the Swedish Research Council for the 2013 "Workshop for Science Writers: Astrophysics and Cosmology"
- US$ 10,000 from the Foundational Questions Institute to support the workshop on "Nonlocality: Aspects and Consequences"
- SEK 40,500 from the Swedish Research Council for the 2010 conference on "Experimental Search for Quantum Gravity"
- 3rd prize of the 2012 essay contest of the Foundational Questions Institute
- 2nd prize of the 2010 essay contest of the Foundational Questions Institute
- 2009-2012: Research grant by the DFG, Germany
  (offered to but declined by applicant due to other offer)
- 2006-2011: Emmy Noether-Fellowship of the DFG, Germany
  (offered to but declined by applicant, due to other offer)
- 2003-2004: Scholarship of the DAAD, Germany

[1] http://www.fqxi.org
[2] http://www.fetzer-franklin-fund.org

- 2000-2003: Scholarship of the "Land Hessen", Germany
- 1997-2000: Scholarship of the "Studienstiftung des Deutschen Volkes", Germany

Publications:

- 36 peer reviewed research articles (plus one in review)
- 7 peer reviewed review articles or book chapters
- 11 peer reviewed conference proceedings
- 6 non-reviewed comments and replies
- 4 other publications
- h-index (inspire): 20 (published only papers), 24 (all citeable papers)

Organization of Scientific Meetings:

- Organizing committee of the conference *Experimental Search for Quantum Gravity*, September 2014, Trieste, Italy
- Local organizing committee of the workshop *Physics for Science Writers: Quantum Theory*, August 2014, Stockholm, Sweden
- Local organizing committee of the workshop *Physics for Science Writers: Astrophysics and Cosmology*, May 2013, Stockholm, Sweden
- Local organizing committee of the program *Perspectives of Fundamental Cosmology*, November 2012, Stockholm, Sweden
- Organizing committee of the conference *Experimental Search for Quantum Gravity*, October 2012, Waterloo, Canada
- Local organizing committee of the workshop *Nonlocality: Aspects and Consequences*, June 2012, Stockholm, Sweden
- Local organizing committee of the conference *Experimental Search for Quantum Gravity*, July 2010, Stockholm, Sweden, website: `nordita.org/esqg10`
- Local organizing committee of the conference *Science in the 21st Century*, Sep. 2008, Waterloo, Canada, website: `Science21stCentury.org`
- Local organizing committee of the conference *Experimental Search for Quantum Gravity* 2007, Waterloo, Canada, website: `pitp.ca/esqg07`
- Local Organizing committee of the conference *Strangeness in Quark Matter* (SQM) 2001, Frankfurt, Germany

Curriculum Vitae of Ralf Eichhorn

Personal information

Name:	Ralf Eichhorn
Birthday & -place:	16. February 1970, Würzburg, Germany
Nationality:	German
Working address:	Nordic Institute for Theoretical Physics (Nordita) Roslagstullsbacken 23 10691 Stockholm Sweden Phone: +46 (0)8 5537 8708 E-mail: `eichhorn@nordita.org`
Private address:	Myravägen 30 17890 Ekerö Sweden Phone: +46 (0)8 560 20420

Education

06/1989 **Abitur** at the Friedrich-Koenig-Gymnasium Würzburg
(German advanced school-leaving exam and university entrance qualification)

12/1996 **Diploma** in Theoretical Physics at the University of Würzburg
Thesis: *Lerndynamik der nichtüberlappenden Paritätsmaschine*,
(*Learning dynamics of the non-overlapping parity machine*).

07/2000 **PhD** in Theoretical Physics at the University of Augsburg;
(grade: magna cum laude).
PhD thesis: *Simple polynomial chaotic models.*

Scientific career

10/1991 - 12/1996 **Study** of Physics at the University of Würzburg, Germany.

07/1995 - 08/1996 **Diploma student** in the group of Prof. Wolfgang Kinzel, Faculty of Physics and Astronomy at the University of Würzburg, Germany.
Supervisor: Priv.-Doz. Dr. Michael Biehl.

01/1997 - 03/1997 **Graduate Assistant** in the group of Prof. Wolfgang Kinzel, Faculty of Physics and Astronomy at the University of Würzburg, Germany.

04/1997 - 07/2000	**PhD student** in the group of Prof. Peter Hänggi, Institute of Physics at the University of Augsburg, Germany. Supervisor: Priv.-Doz. Dr. Stefan Linz.
04/1997 - 03/2000	**Fellow** of the Graduiertenkolleg "Nichtlineare Probleme in Analysis, Geometrie und Physik" (Nonlinear Problems in Analysis, Geometry and Physics) at the University of Augsburg, Germany.
08/2000 - 07/2002	**Postdoc** in the group of Prof. Peter Hänggi, Institute of Physics at the University of Augsburg, Germany.
08/2002 - 12/2008	**Scientific Assistant** in the group of Prof. Peter Reimann, Physics Department, Condensed Matter Theory, University of Bielefeld, Germany.
since 01/2009	**Assistant Professor** at NORDITA (Nordic Institute for Theoretical Physics), Stockholm, Sweden.

Research interests

Brownian motion and transport phenomena in non-equilibrium systems
Stochastic Thermodynamics
Biophysics (specifically: dynamics of biomolecules, diffusion in biological systems)
Microfluidics, Nonlinear dynamics and chaos

Publications

Number of papers in refereed journals: 47
Number of editorials: 3
Number of papers in (non-refereed) conference proceedings: 7
Total number of citations (Web of Science, Feb. 2015): 810

Organization of conferences, workshop, symposia

Workshop Series at Nordita, Stockholm (Sweden):
Nordic Workshop on Statistical Physics: Biological, Complex and Nonequilibrium Systems
Organizers: Ralf Eichhorn, Alberto Imparato, Hans Fogedby

1st	March 17-19, 2010	`http://www.nordita.org/nwsp2010`
2nd	Feb. 23-25, 2011	`http://www.nordita.org/nwsp2011`
3rd	March 28-30, 2012	`http://www.nordita.org/nwsp2012`
4th	March 20-22, 2013	`http://www.nordita.org/nwsp2013`
5th	March 26-28, 2014	`http://www.nordita.org/nwsp2014`
6th	Feb. 25-27, 2015	`http://www.nordita.org/nwsp2015`

Stochastic Thermodynamics in Biology
Nordita, Stockholm (Sweden), Sep. 21-Oct. 16, 2015
Coordinators: Ralf Eichhorn, Erik Aurell, Astrid de Wijn
webpage: http://www.nordita.org/stbio2015

Statistical Physics and Mechanics of Forms and Shapes
Mariehamn (Finland), May 27-30, 2015
Organizers: Marcelo A. Dias, Mikko Alava, Ralf Eichhorn, Petia Vlahovska
webpage: http://www.nordita.org/sm2015

Statistical Mechanics of Biological Cooperativity
Mariehamn (Finland), May 22-25, 2013
Organizers: Mikko Alava, Erik Aurell, Ralf Eichhorn, Juho Rousu
webpage: http://agenda.albanova.se/conferenceDisplay.py?confId=3486

Stochastic Thermodynamics
Nordita, Stockholm (Sweden), March 4-15, 2013
Coordinators: Ralf Eichhorn, Erik Aurell
webpage: http://agenda.albanova.se/conferenceDisplay.py?confId=3281

XXXII Dynamics Day Europe,
Minisymposium on "Random walks and stochastic thermodynamics",
Gothenburg (Sweden), Sep. 4, 2012
Organizers: Mats Wallin, Ralf Eichhorn

Statistical Mechanics of Unsatisfiability and Glasses
Mariehamn (Finland), May 23-26, 2012
Organizers: Mikko Alava, Erik Aurell, Ralf Eichhorn, Pekka Orponen
webpage: http://agenda.albanova.se/conferenceDisplay.py?confId=3181

Dynamics of Biomolecular Processes: From Atomistic Representations to Coarse-Grained Models, Nordita, Stockholm (Sweden), Feb. 27-March 23, 2012
Coordinators: Hans Behringer, Stefan Wallin, Ralf Eichhorn
webpage: http://agenda.albanova.se/conferenceDisplay.py?confId=2878

Foundations and Applications of Non-Equilibrium Statistical Mechanics
Nordita, Stockholm (Sweden), Sep. 19-Oct. 3, 2011
Coordinators: Ralf Eichhorn, Alberto Imparato, Hans Fogedby, Carlos Mejía-Monasterio
webpage: http://agenda.albanova.se/conferenceDisplay.py?confId=1976

Statistical Mechanics and Computation of DNA self-assembly
Mariehamn (Finland), May 25-28, 2011
Organizers: Erik Aurell, Mikko Alava, Ralf Eichhorn, Ralf Metzler, Pekka Orponen
webpage: http://agenda.albanova.se/conferenceDisplay.py?confId=2307

Curriculum Vitae

Positions

- Oct 2013 - Oct 2018 Assistant professor at Nordita - Nordic Institute for Theoretical Physics
  Jan 2014 - Visiting researcher at Univ. Helsinki (visiting professorship application pending)
- Oct 2011 - Oct 2013 Postdoc at the ITA of Oslo University
- Oct 2009 - Oct 2011 Postdoc at the Utrecht University, ITP and the Spinoza Institute
- Sep 2007 - Oct 2009 Postdoc at the Institute for Theoretical Physics of Heidelberg University
- Jan 2007 - Sep 2007 Doctoral researcher at Helsinki Institute of Physics

Education

- December 2006 PhD degree in theoretical physics at the Helsinki Institute of Physics,
  Supervisors: Hannu Kurki-Suonio and Finn Ravndal
- September 2002 Master degree in theoretical physics at Helsinki University,
  Supervisor: Hannu Kurki-Suonio

Research Interests

- **Cosmological models** (Dark energy and its alternatives, inflation and its alternatives, anisotropic models)
- **Large-scale structure** (CMB, statistical anisotropy, nonlinearity, quantum origin and thermal alternatives)
- **Gravity theories** (Quantum, nonlocal, stringy, metric-affine, higher derivative, Finsler, variational principles)

Supervision

- PhD supervisor of Miguel Zumalacárregui Pérez: " Probing the Foundations of the Standard Cosmological Model Model" (Nov. 2012 UAM, Madrid). Zumalacárregui continues as a postdoc of Luca Amendola at the Univ. Heidelberg.
- PhD supervisor of Hannu Nyrhinen (2011-2015 Helsinki Institute of Physics).
- Advisor for the master thesis work of Fatimeht Bagheri (2011-2013, ITA, Univ. Oslo)
- Advisor for the master thesis work of Eunseong Lee (2011-2013, ITA, Univ. Oslo)
- Supervised three master student summer job projects (Summer 2011, ITA, Univ. Oslo)
- In addition, has assisted the supervision of the following students (co-authored articles published in peer-reviewed journals and included in their PhD thesises): M. Axelsson (Univ. Oslo), J. Beltran Jimenez (UCM, Madrid), A. Conroy (Univ. Lancaster) (under progress), E. Gerwick (Univ. Heidelberg), N.E. Groeneboom (Univ. Oslo), J. Enander (Univ. Stockholm), C. Pitrou (Univ. Paris), J. Kristiansen (Univ. Oslo), F. Könnig (Univ. Heidelberg, under progress), M. Sandstad (Univ. Oslo), A. Solomon (DAMTP, Cambridge), N. Tamanini (UCL, London), A. Teimouri (Univ. Lancaster, under progress), D. Wills (Univ. Durham, under progress).
- Attended the Workshop on Professionalization of PhD Supervision (6-7.12. 2012 Univ. Oslo)

Teaching

- **Lecturer.**
  - 7-16.01.2015 the 6th annual Nordita Winter School on Theoretical Physics (Stockholm)
  - 15-18.06.2012 the Nordic Millimetre and Optical/NIR Astronomy Summer School: Observational cosmology and the formation and evolution of galaxies (Onsala Observatory)
- **Substitute lecturer.** 15.10.2010 Substitute lecturer on General Relativity course of profs. Prokopec and t 'Hooft (Utrecht)
- **Trial lecturer.**
  - 5.10.2012 Trial lecture for students, in relation to application for a Theor. Physics professorship (Oslo)
  - 11.06.2012 Trial lecture for students, in relation to application for a Theoretical Physics professorship (Stavanger)
  - April 2015 Trial lecture, in relation to application for a visiting professorship (Univ. Helsinki)
- **Teaching assistant.**
  - summer 2009 General Relativity course of prof. Bartelmann (Heidelberg)
  - summer 2008 General Relativity course of dr. Schwindt (Heidelberg)
  - winter 2007-2008 Quantum Mechanics seminar led by prof. Klevansky (Heidelberg)
  - autumn 2005 prof. Enqvist's graduate course in Many-body Phenomena (Helsinki)
  - spring 2004 prof. Kurki-Suonio's undergraduate course in General Relativity (Helsinki)

Publications

- Number of articles and letters published in peer-reviewed international scientific journals: 54 + 6 awaiting referee report
- Number of published conference proceedings: 8
- Number of contributions to books: 2

Citations

In February 2014, the citations seen in the Inspires database (http://inspirehep.net/) to the 71 publications seen there yield the following statistics:

- Total number of citations: 3025
- Average number of citations per paper: 43
- 14 of the 19 top-cited papers (with over 50 citations) as the first author, 8 as the sole author
- h-index (the maximum number N of papers which all have at least N citations) : 28

Presentations

Has given over 70 talks at international conferences, seminars and colloquia in Belgium, China, Denmark, Estonia, Finland, France, Germany, the Netherlands, Norway, Portugal, Russia, Spain, South Africa, Sweden, Ukraine and the United Kingdom.

Organising meetings

- 2-20.3.2015: Extended Theories of Gravity, Stockholm, Sweden: the main organiser of an international 3-week workshop
- 1-3.10.2014: The Nordic Cosmology Workshop "Dark Energy Interactions", Stockholm, Sweden: the main organiser of an international conference with about 60 participants
- 7-12.12.2007: Second TRR33 Winter school, Passo del Tonale, Italy: a member of the organizing committee

Other scientific roles

- **Contributor to ESA space mission.** Member of the Euclid Consortium theory group since February 2011.
- **Opponent in PhD defenses.**
  - Mikko Pääkkönen (10.10.2014, Univ. Jyväskylä)
  - Kaisa Henttunen (18.4.2015 Univ. Turku)
- **External advisor.** Several CERN funded projects "Late-time cosmic acceleration: Dark energy and modified gravity" at Lissabon University, starting March 2011
- **Referee for grant proposals** for the National Research Foundation of South Africa, 2014.
- **Referee for PhD thesises.**
  - Vappu Reijonen (Helsinki Institute of Physics, 2010)
  - Tuukka Meriniemi (Helsinki Institute of Physics, 2014)
- **Referee** for the following journals: Annals of Physics, Canadian Journal of Physics, Classical and Quantum Gravity, European Physical Journal C, Fizica B, Foundations of Physics, General Relativity and Gravitation, International Journal of Modern Physics D, Journal of Cosmology and Astroparticle Physics, Journal of Physics A: Mathematical and Theoretical, Mathematical Reviews, Monthly Notices in Royal Astronomy, New Journal of Physics, Physics Letters B, Physical Review Letters, Physical Review D, Physica Scripta, Proceedings of the Estonian Academy of Sciences.
- **Member of scientific societies.**
  - European Physical Society
  - Finnish Physical Society
  - International Astronomical Union

Dhrubaditya Mitra

NORDITA
Roslagstullsbacken 23
106 91 Stockholm, Sweden
Date of birth: 1976 April 23
Citizenship: Indian.

Phone: +46 8 5537 8575
Fax: +46 8 5537 8404
E-mail: dhruba.mitra@gmail.com
http://www.nordita.org/~dhruba

Employment

2010 – present	Assistant Professor, Nordic Institute for Theoretical Physics (NORDITA).
2007 – 2010	Leverhume trust post-doctoral fellow, Astronomy Unit, School of Mathematical Sciences, Queen Mary, University of London.
2006 – 2007	Henri Poincaré post-doctoral fellow, Lab. Cassiopée, Observatoire de la Côte d'Azur, Nice, France.
2005 – 2006	Visiting associate professor, Lab. Cassiopée, Observatoire de la Côte d'Azur, Nice, France.
Oct – Dec 2004	Project Assistant, Dept. of Phys. Indian Institute of Science.

Education

March 2005	Ph.D. in Physics, Indian Institute of Science (IISc), Bangalore. Thesis title: Studies of static and dynamic multiscaling in turbulence.
2000	M.S. in Physics, Indian Institute of Science, Bangalore.

Teaching duties

Spring 2015	Undergraduate course on electrodynamics (Stockholm University)
Spring 2013	Graduate course on scientific computing using Fortran (Stockholm University).
Spring 2012	Lectures on dynamo theory as a part of the graduate course on astrophysical MHD taught by A. Brandenburg in Stockholm University.
Fall 2010	Graduate course on scientific computing using Fortran (Stockholm University).
December 2006	A short course on statistical theories of turbulence, SERC school, Kolkata.

Mentoring

- Farrangis Bagheri (Masters Thesis, KTH, Mechanics, 2011) jointly with Luca Brandt.
- Partial supervision of the PhD thesis work of Koen Kemel (PhD Thesis, Stockholm University, 2012) and Joern Warneke (PhD Thesis, Stockholm University 2013).
- Supervision of visiting PhD student Anupam Gupta, September – November 2012.
- Supervision of visiting summer student Damian Kwiatkowski, August – September 2012.
- Mentoring of Post-doc C. Rorai from April 2013.

Grants held

- Co-investigator, Wallenberg grant: *Bottlenecks for particle growth in turbulent aerosols*; PI Bernhard Mehlig, Uni versity of Gothenberg (2015-2020).
- Research Grant of the swedish research council titled *Turbulence in dilute polymer solutions* (2012 – 2014).

Organization of meetings

Aug 2015	NORDITA masterclass in physics, Hillerod (Co-organizer).
Jun 2014	Dynamics of Particles in Flows: Fundamentals and Applications, NORDITA program, Stockholm (Co-organizer).
Aug 2012	Astrophysical code comparison workshop, NORDITA, Stockholm (Co-organizer).
Nov 2011	Polymers in Fluids, Laboratoire J.-A. Dieudonné, Nice (Co-organizer).
Jul 2012	NORDITA masterclass in physics, Hillerod (Co-organizer).
Oct 2011	The solar course, the chemic force and the speeding change of water, NORDITA, Stockholm (Co-organizer).
Jun 2005	Anomalous scaling in turbulence and statistical physics, Beaulieu-sur-mer, France (Scientific Secratary).

Awards

- Visiting Professor, Laboratoire J.A. Dieudonné, 2012-13.
- Martin Forster medal for best PhD thesis in the division of physical and mathematical sciences in IISc.
- Senior and Junior Research Fellowship of Council for Scientific and Industrial Research, India.

Professional and Academic Service

Editor EPJ+
Reviewer for A&A, ApJ, GAFD, Physical Review, JFM, PoP, and Journal of Rheology.
Member, International Astronomy Union , Division II Commission 10 (Solar Activity).
Member of the selection committee for postdoctoral fellows, Nordita.
Coordinator Nordita Seminar.
Core-developer of the pencil-code.

Pubications

More than 40 papers in peer-reviewed journals, with an h-index of 14 (Google Scholar).

Influential/Recent Publications

14. Ensemble Kalman filter data assimilation in a Babcock-Leighton solar dynamo model: an observation system simulation experiment for reconstructing meridional flow-speed.
M Dikpati, J.L. Anderson, and **D. Mitra**, *Geophysical Research Letters*, **41**, 5361-5369, 2014; (arXiv:1408.5113).
13. Intense bipolar structures from stratified helical dynamos.
D. Mitra, A. Brandenburg, N. Kleeorin, and I. Rogachevskii, *Monthly Notices of the Royal Astronomical Society*, **445**, 761-769, 2014 (arXiv:1404.3194).
12. A microfluidic device to sort capsules by deformability.
L. Zhu, C. Rorai, **D. Mitra**, and L. Brandt, *Soft Matter*, **10**, 7705-7711, 2014; (arXiv:1402.6851).
11. Shear thickening in non-Brownian suspensions: an excluded volume effect.
F. Picano, W-P. Breugem, **D. Mitra**, L. Brandt, *Phys. Rev. Lett.*, **111**, 098302, 2013; (arXiv:1211.5501)
10. Detection of negative effective magnetic pressure instability in turbulence simulations.
A. Brandenburg, K. Kemel, N. Kleeorin, **D. Mitra**, I. Rogachevskii, *Astrophys. J. Lett.*, **740**, L50 (2011) (arXiv: 1109.1270).
9. Dynamic Multiscaling in Two-dimensional Fluid Turbulence.
S. S. Ray, **D. Mitra**, P. Perlekar, R. Pandit, *Phys. Rev. Lett.*, **107**, 184503 (2011) (arXiv: 1105.5160).
8. The Persistence Problem in Two-Dimensional Fluid Turbulence.
P. Perlekar, S. S. Ray, **D. Mitra**, and Rahul Pandit, *Phys. Rev. Lett*, **106**, 054501 (2011) (arXiv: 1009.1494).
7. Oscillatory migrating magnetic fields in helical turbulence in spherical domains.
D. Mitra, R. Tavakol, P.J. Käpylä and A. Brandenburg, *Astrophys. J. Lett*, **719**, L1-L4, (2010), (arXiv:0901.2364).
6. Convective dynamos in spherical wedge geometry.
P.J. Käpylä, M.J. Korpi, A. Brandenburg,**D. Mitra** and R. Tavakol *Astron. Nachr.*, **331**, 73-81 (2010), (arXiv:0909.1330).
5. Turbulent dynamos in spherical shell segments of varying geometrical extent.
D. Mitra, R. Tavakol, A. Brandenburg, and D. Moss, *Astrophys. J* , **697**, 923-933, (2009) (arXiv:0812.3106).
4. Manifestations of Drag Reduction by polymer additives in Decaying, Homogeneous, Isotropic Turbulence.
P. Perlekar, **D. Mitra** and R. Pandit. *Phys. Rev. Lett.*, **97**, 264501 (2006). (arXiv:nlin/0609066)
3. Dynamics of Passive-Scalar Turbulence
D. Mitra and R. Pandit, *Phys. Rev. Lett.*, **95**, 144501 (2005). (arXiv:nlin/0412013)
2. Is multiscaling an artifact in the Stochastically Forced Burgers Equation ?
D. Mitra, J. Bec, R. Pandit and U. Frisch. *Phys. Rev. Lett.*, **94**, 194501 (2005). (arXiv:nlin/0406049)
1. Varieties of Dynamic Multiscaling in Fluid Turbulence.
D. Mitra and R. Pandit. *Phys. Rev. Lett.* **93**, 024501 (2004) (arXiv:nlin/0309037)

Curriculum Vitae - Monica M. Guică

Personal information

Full name: Guică, Monica Maria
Born: 27.03.1981
Citizenship: Romanian; resident of Sweden
Institutional address: Department of Physics and Astronomy, Uppsala University - Theoretical Physics, Box 516, 751 20 Uppsala, Sweden
- Nordic Institute for Theoretical Physics, Roslagstullbacken 23, 114 21 Stockholm, Sweden

Education

1999 - 2003: B.A. Physics, University of Chicago, USA
Undergraduate advisor: Prof. Sean Carroll
2003 - 2008: PhD Physics, Harvard University, USA. Awarded 04.11.2008
Advisor: Prof. Andrew Strominger
Thesis title: "Supersymmetric attractors, topological strings and the M5-brane CFT"

Current positions

2014 - present: Senior lecturer, Uppsala University, Sweden
2014 - 2019 : Researcher, Nordic Institute for Theoretical Physics, KTH, Sweden.

Previous positions

2008 - 2010: Postdoctoral researcher, LPTHE, Université Paris 6, France
2010 - 2011: Postoctoral researcher, IPhT, CEA Saclay, France
2011 - 2014: Postoctoral researcher, University of Pennsylvania, USA

Prizes and awards

1999: Silver Medal, 30^{th} International Physics Olympiad, Pisa, Italy
2002: Student Marshal distinction, University of Chicago, USA
2003: J. H. Lewis Senior Prize, Physics Department, University of Chicago, USA
2003-2004: Purcell Fellowship, Harvard University, USA
2003-2008: Van Vleck travel grant, Harvard University, USA
2014-2015: Cheng Visiting Fellowship, Center of Mathematical Sciences and Applications, Harvard University, USA

Invited talks at international conferences

2015: *Behind the geon horizon*, "Holographic Renormalization group and entanglement", Paris, France
- "Gauge/gravity duality 2015", Florence, Italy
- "Black Holes in High Energy Physics", Natal, Brasil
- "Fourteenth Marcel Grossman meeting", Rome, Italy

2014: *A toy model for the Kerr/CFT correspondence*, "Strings 2014", Princeton, USA.
Most prestigious conference in my field.
- *Two Virasoro symmetries in stringy warped AdS_3*, "Holography for Black Holes and Cosmology", Brussles, Belgium
- *Gravitation from entanglement in holographic CFTs*, "Mextrings", Colima, Mexico

2013: *Gravitation from entanglement in holographic CFTs*, "String geometry and beyond", Costa Rica
- *Using string theory to understand Kerr/CFT: review and recent progress*, "Quantum aspects of black holes", Yerevan, Armenia
- *Decrypting the warped black holes*, Benasque "String Theory" Workshop, Spain

2012: *Un-twisting the NHEK with spectral flows*, "Branes and black holes", London, UK
- *The black hole hologram*, "Sixth Schrödinger lecture", Timişoara, Romania
This is a lecture series (one every year) organised by the Erwin Schrödinger Institute in Vienna. I was the only junior person invited to deliver a lecture.
- *Kerr/CFT: review and new directions*, "Bits, branes and black holes" Santa Barbara, USA

2011: *Kerr/CFT, dipole theories and nonrelativistic CFTs*, "Holography and Singularities in String Theory and Quantum Gravity", Aspen, USA
- *Microscopic realization of the Kerr/CFT correspondence*, "Sixth Crete regional meeting in string theory", Milos, Greece

2010: *Microscopic realization of the Kerr/CFT correspondence*, "Another Workshop on Aspects of Gauge/Gravity Duality", Cambridge, UK

2009: *The Kerr/CFT correspondence*, "A new year of string theory", Tel-Aviv, Israel

Invited seminars at universities

In addition to conferences and workshops, I have given over 40 invited research seminars at various European and American institutions, including: Harvard, Princeton, Institute for Advanced Studies, Massachussetts Institute of Technology, University of Chicago, Caltech, Texas A & M, Michigan University at Ann Arbor, McGill, Trinity College Dublin, DAMTP Cambridge (UK), Durham, CERN, Institut des Hautes Etudes Scientifiques, LPTHE Paris 6, ENS Paris, LPT Orsay, Ecole Polytechnique, Institut Henri Poincaré, ENS Lyon, LMPT Tours, Université Libre de Bruxelles, KU Leuven, Nordita, Utrecht University, Padova University, SISSA Trieste, Milano Biccoca, Prague.

International collaborations

I have collaborated with more than 30 scientists, including Andrew Strominger (Harvard), Atish Dabholkar (ICTP Trieste), Mark van Raamsdonk (University of British Columbia), Rob Myers (Perimeter), Iosif Bena (CEA Saclay), Kostas Skenderis (Southampton), Marika Taylor (Southhampton), Albion Lawrence (Brandeis), Simon Ross (Durham), Sean Carroll (Caltech), David Mateos (Barcelona), Mirjam Cvetič (University of Pennsylvania). Among the more junior researchers, I have collaborated with Davide Gaiotto (Perimeter), Xi Yin (Harvard), Tom Hartman (Cornell), Tom Faulkner (Urbana-Champaign), Balt van Rees (Durham), Sheer El-Showk (CERN & Paris), Geoffrey Compère (Brussels), Wei Song (Beijing).

Teaching activities

2004-2008: Teaching assistant, Harvard University, various undergraduate and graduate courses
2005 : Mini-course on string theory, University of Zhejiang, China
2015 : General relativity, Uppsala University, Sweden

Supervising activities

I have unofficially supervised two PhD students: Andrea Puhm, during my postdoc at CEA-Saclay, and Zain Saleem, while I was at U. Pennsylvania.

Institutional responsibilities

In 2014, I have been involved in the recruitment of postdocs at NORDITA.

Organisation of workshops and conferences

2009: Working group on three-dimensional gravity and the Kerr/CFT correspondence, "CERN Winter School on Supergravity, Strings and Gauge Theories", CERN, Switzerland

2016: "Amplitudes 2016" conference, Nordita, Sweden
- "Black Holes and Emergent Spacetime", four-week workshop including summer school and conference, Nordita, Sweden

Refereeing activities

- Referee for JHEP, Physics Letters B, Physical Review D, Living Reviews in General Relativity
- Grant reviewer for the Netherlands Organisation for Scientific Research (NWO)

List of publications

1. Monica Guica, Simon F. Ross, *"Behind the geon horizon*, arXiv: 1412.1084, To be published in Clas. Quant. Grav.

2. Geoffrey Compère, Monica Guica, Maria Rodriguez, *"Two Virasoro symmetries in stringy warped AdS_3*, JHEP 1412 (2014) 012 arXiv: 1407.7871 [hep-th]

3. Thomas Faulkner, Monica Guica, Thomas Hartman, Robert Myers, Mark van Raamsdonk, *"Gravitation from entanglement in holographic CFTs"*, JHEP 1403 (2014) 051, arXiv: 1312.7856

4. Monica Guica, *"Decrypting the warped black strings"*, JHEP 1311 (2013) 025, arXiv: 1305.7249

5. Mirjam Cvetič, Monica Guica, Zain Saleem, *"General black holes, untwisted"*, JHEP 1309 (2013) 017, arXiv: 1302.7032 [hep-th]

6. Stéphane Detournay, Monica Guica, *"Stringy Schrödinger truncations"*, JHEP 1308 (2013) 121, arXiv: 1212.6792 [hep-th]

7. Vijay Balasubramanian, Monica Guica, Albion Lawrence, *"Holographic interpretations of the renormalization group"*, JHEP 1301: 115, 2013, arXiv: 1211.1729 [hep-th]

8. Iosif Bena, Monica Guica, Wei Song, *"Un-twisting the NHEK with spectral flows"*, JHEP 1303: 028, 2013, arXiv: 1203.4227 [hep-th]

9. Monica Guica, *"A Fefferman-Graham-like expansion for null warped AdS_3"*, JHEP 1212: 084, 2012, arXiv: 1111.6978 [hep-th]

10. Sheer El-Showk, Monica Guica, *"Kerr/CFT, dipole theories and nonrelativistic CFTs"*, JHEP 1212: 009, 2012, arXiv: 1108.6091 [hep-th]

11. Monica Guica, Andrew Strominger *"Microscopic realization of the Kerr/CFT correspondence"*, JHEP 1102: 010, 2011, arXiv: 1009.5039 [hep-th]

12. Monica Guica, Kostas Skenderis, Marika Taylor, Balt van Rees *"Holography for Schrödinger backgrounds"*, JHEP 1102: 056, 2011, arXiv: 1008.1991 [hep-th]

13. Dionysios Anninos, Geoffrey Compère, Stéphane Detournay, Sophie de Buyl, Monica Guica, *"The curious case of null warped space"*, JHEP 1011: 119, 2010, arXiv: 1005.4072 [hep-th]

14. Dionysios Anninos, Mboyo Esole, Monica Guica, *"Stablity of warped AdS_3 vacua of topologically massive gravity"*, JHEP 0910:083, 2009, arXiv: 0905.2612 [hep-th]

15. Atish Dabholkar, Monica Guica, Sameer Murthy, Suresh Nampuri, *"No entropy enigmas for $\mathcal{N} = 4$ dyons"*, JHEP1006:007, 2009, arXiv: 0903.2481 [hep-th]

16. Monica Guica, Thomas Hartman, Wei Song, Andrew Strominger, *"The Kerr/CFT correspondence"*, Phys. Rev. D80:124008, 2009, arXiv: 0809.4266 [hep-th]

17. Monica Guica, Andrew Strominger, *"Cargèse lectures on string theory with eight supercharges"*, Nucl.Phys.Proc.Suppl.171:39-68,2007, arXiv: 0704.3295 [hep-th]

18. Monica Guica, Andrew Strominger, *"Wrapped M2/M5 Duality"*, JHEP 0910:036, 2009, arXiv: hep-th/0701011

19. Chris Beasley, Davide Gaiotto, Monica Guica, Lisa Huang, Andrew Strominger, Xi Yin , *"Why $Z_{BH} = |Z_{top}|^2$"*, arXiv: hep-th/0608021

20. Davide Gaiotto, Monica Guica, Lisa Huang, Aaron Simons, Andrew Strominger, Xi Yin, *"D4-D0 branes on the quintic"*, JHEP 0603:019,2006, arXiv: hep-th/0509168

21. Monica Guica, Lisa Huang, Wei Li, Andrew Strominger, *"R^2 corrections for 5-D black holes and rings"*, JHEP 0610:036,2006, arXiv: hep-th/0505188

22. Michelle Cyrier, Monica Guica, David Mateos, Andrew Strominger, *"Microscopic entropy of the black ring"*, Phys.Rev.Lett.94:191601,2005, arXiv: hep-th/0411187

23. Sean Carroll, Monica Guica, *"Sidestepping the cosmological constant with football shaped extra dimensions"*, arXiv: hep-th/0302067

Total number of citations: 1079; average citations per paper: 46.9; h-index = 15

Curriculum Vitae – Henrik Johansson

- PERSONAL INFORMATION

Name: Henrik Johansson
Date of birth: 12-06-1978
Nationality: Swedish
INSPIRE-HEP: Henrik.Johansson.1
www.physics.uu.se/en/page/henrik-johansson
www.nordita.org/people/staff/index.php?u=henrik.johansson

- EDUCATION

2009 Ph.D., Department of Physics and Astronomy, University of California at Los Angeles. (UCLA), USA.
2005 Master (graduate) Department of Physics and Astronomy, University of California at Los Angeles (UCLA), USA.
2003 Magisterexamen (undergraduate), Department of Physics, Lund University, Sweden.

- CURRENT POSITIONS

2014– Associate Professor (Senior Lecturer), Department of Physics and Astronomy, Uppsala University, Sweden.
2014–2019 Senior Lecturer, Nordic Institute for Theoretical Physics (NORDITA), Sweden.

- PREVIOUS POSITIONS

2012–2015 CERN Fellow, Theory Group, CERN, Geneva, Switzerland.
2009–2012 Postdoctoral Researcher, Institut de Physique Théorique, CEA Saclay, France.

- FELLOWSHIPS AND AWARDS

2014–2019 Wallenberg Academy Fellow 2013, Knut and Alice Wallenberg Foundation, Sweden (17.5M SEK).
2012–2015 Marie Curie COFUND Fellowship via CERN, Switzerland (90 000 CHF).
2009 Graduate Dissertation Year Fellowship, UCLA, USA (20 000 USD).
2007–2009 Guy Weyl Physics Alumni Fellowship, UCLA, USA (100 000 USD).
2004 Fellow, Sweden-America Foundation, Sweden (150 000 SEK).

- SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

2014– Supervisor of two Ph.D. students and one postdoctoral fellow, Department of Physics and Astronomy, Uppsala University, Sweden.
2010–2012 Mentor of two Ph.D. students, Institut de Physique Théorique, CEA Saclay, France.

- TEACHING ACTIVITIES

2014– Senior Lecturer, 10-week course for 2nd-year physics/math bachelors, Uppsala University, Sweden.
2006 Teaching Assistant, in charge new electronic homework system, UCLA, USA.
2004–2007 Teaching Assistant, taught nine bachelors-level courses in mechanics, electromagnetism, thermodynamics, waves, astronomy, UCLA, USA.

- ORGANISATION OF SCIENTIFIC MEETINGS

2016 Organizer of the *Amplitudes 2016* conference, NORDITA, Sweden (*upcoming*).
2014 Organizer of 3-day mini-workshop: *Supergravity, Double-Copy Structure and UV behavior*, Uppsala University, Sweden.
2013 Co-organizer of CERN TH Institute: *Amplitudes, Strings and Branes*, Switzerland.

- INSTITUTIONAL RESPONSIBILITIES

2014– Faculty member, Uppsala University, Sweden.
2014–2019 Faculty member, NORDITA, Sweden.

- COMMISSIONS OF TRUST

2014– Board member, Centre for Interdisciplinary Mathematics, Uppsala University.
2009– Referee, Journal of High Energy Physics (JHEP).

- RESEARCH INTERESTS

  - Foundations of gauge and gravity quantum field theories.
  - New methods for perturbative calculations and automation.
  - Color-kinematics duality in gauge theory.
  - Ultraviolet behavior of quantum gravity.

- FIVE TOP-CITED PUBLICATIONS

1. **[Citations: 268]** Z. Bern, J.J. Carrasco, **H. Johansson**, *New Relations for Gauge-Theory Amplitudes*, Phys. Rev. D78:085011 (2008) [arXiv:0805.3993 [hep-ph]].
2. **[Citations: 201]** Z. Bern, J.J. Carrasco, L. Dixon, **H. Johansson**, D. Kosower, R. Roiban, *Three-Loop Superfiniteness of $\mathcal{N} = 8$ Supergravity*, Phys. Rev. Lett. 98:161303 (2007) [hep-th/0702112].
3. **[Citations: 170]** Z. Bern, J.J. Carrasco, L. Dixon, **H. Johansson**, R. Roiban, *The Ultraviolet Behavior of N=8 Supergravity at Four Loops* Phys. Rev. Lett. 103:081301 (2009) [arXiv:0905.2326 [hep-th]].
4. **[Citations: 162]** Z. Bern, J.J. Carrasco, **H. Johansson**, *Perturbative Quantum Gravity as a Double Copy of Gauge Theory*, Phys. Rev. Lett. 105:061602 (2010) [arXiv:1004.0476 [hep-th]].
5. **[Citations: 143]** Z. Bern, J.J. Carrasco, **H. Johansson**, D. Kosower, *Maximally Supersymmetric Planar Yang-Mills Amplitudes at Five Loops*, Phys. Rev. D76:125020 (2007) [arXiv:0705.1864 [hep-th]].

h-index: 20, *total citations*: 1774, (from INSPIRE-HEP)

- INVITED LECTURES AT SCHOOLS

1. NORDITA Winter School, Stockholm, Sweden, *Scattering Amplitudes in Gravity and Gauge Theories*, Jan 2015.
2. 7th Taiwan String Workshop, Taipei, Taiwan, *Yang-Mills-Einstein Theory as a Double Copy*, Nov. 2014.
3. Helmholtz International School, JINR Dubna, Russia, *Determining Supergravity and Super-Yang-Mills UV Behavior*, Sept. 2013.
4. School of Analytic Computing, Atrani, Italy, *N=4 SYM and N=8 Supergravity Amplitudes*, Oct. 2011.

- INVITED PRESENTATIONS AT INTERNATIONAL CONFERENCES

1. Plenary talk: SUSY 2013, Trieste, Italy, 20/08/13.
2. Plenary talk: Strings 2011, Uppsala, Sweden, 27/06/11.

3. IAS Focused Program on Scattering Amplitudes, HKUST, Hong Kong, 19/11/14.
4. Current Themes in High Energy Physics and Cosmology, NBI, Denmark, 26/08/14.
5. Supersymmtric Field Theories, NORDITA, Stockholm, Sweden, 14/08/14.
6. Amplitudes 2014, 19th Itzykson Conference, CEA Saclay, France, 13/06/14.
7. Scattering Amplitudes and the Multi-Regge limit, UAM, Madrid, Spain, 11/02/14.
8. The Geometry and Physics of Scattering Amplitudes, Simons Center, Stony Book, USA, 22/10/13 and 10/12/13.
9. Twelfth Workshop on Non-Perturbative Quantum Chromodynamics, l'Institute d'Astrophysique de Paris, France, 10/06/13.
10. Superspace and Quantum Gravity, Paul Howe Fest, Uppsala U., Sweden, 17/05/13.
11. Amplitudes 2013, Ringberg Castle, MPI Munich, Germany, 29/04/13.
12. Supergravity workshop: BUDS 2013, Frascati, Italy, 26/03/13.
13. XXV Workshop Beyond the Standard Model, Bad Honnef, Germany, 19/03/13.
14. Scattering Amplitudes and the Multi-Regge limit, UAM, Madrid, Spain, 24/10/12.
15. Supersymmetry Quantum Gravity and Gauge Fields, SNS, Pisa, Italy, 29/09/12.
16. Scattering Amplitudes: from QCD to maximally supersymmetric Yang-Mills theory and back, ETC, Trento, Italy, 17/07/12.
17. Recent Advances in Scattering Amplitudes, University of Cambridge, UK, 03/04/12.
18. Amplitudes 2012, DESY, Hamburg, Germany, 06/03/12.
19. Amplitudes 2011, University of Michigan, Ann Arbor, USA, 11/11/11.
20. Frontiers of QCD, University of Washington, Seattle, USA, 28/10/11.
21. Harmony of Scattering Amplitudes, KITP Santa Barbara, USA, 21/04/11.
22. International Conference of High Energy Physics (ICHEP), Paris, France, 22/07/10.
23. Integrability in Gauge and String Theory, Stockholm, Sweden, 01/07/10.
24. Integrability in Scattering Amplitudes, IAS, Princeton, USA, 08/04/10.
25. Hidden Structures in Amplitudes, Niels Bohr Institute, Copenhagen, Denmark, 12/09/09.
26. $\mathcal{N} = 4$ SUSY and QCD, LPTHE, Jussieu, Paris, 12/10/08.
27. Hidden Structures in Amplitudes, Niels Bohr Institute, Copenhagen, Denmark, 10/10/08.
28. Is $\mathcal{N} = 8$ Supergravity Finite?, UCLA, Los Angeles, USA, 15/10/06.

Marianne Persson-Söderlind **CV**
Head of Administration at Nordita

Education

Bachelor degree	120 credits
- Sociology, A level	
- Business	
-Law	
- Work Psychology	
- HR administration	
Business/Organization C-level	20 credits
Sociology B-level	20 credits
Master in Public Administration	40 credits
- Politics	
- Leadership	
- Management accounting	
- comparative management / EC	
- Thesis	

Employments

Personnel related questions	1974-1982
- Stockholm University	
- Statens provningsanstalt	
- Umeå Municipality	
- County government in Västerbotten	
- Domänverket i Umeå	
Personnel, economy and education related questions	
- Umeå University	1982-1996
EU-related questions	
- Mid Sweden University	1997-1998
International related questions	
- Head of International Office at KTH	1998/99- 2010
- Adm coordinator Master school at EIT/ICT Labs	2010/11
- Head of Administration at Nordita	2011-

Other

European Commission, DG for education 3 month	1995
Project leadership	2002
Internationalization at home	2007
Board member of EPC (European Programme Coordinators)	
(European Association for International Education)	1992-1997
KTH's Board member in Nordic Center at Fudan University	2005-2009
Development program "Changes through development"	2012

CV

for Anne Jifält, 510310-1928
Storholmsvägen 414
132 52 Saltsjö-Boo
Mobile phone : 0708-938 358
Email: jifalt@telia.com

Professional experience:

HR-offier at Nordita	2010-01-01 --
Administrator at Nordita	2006-07-01 – 2010-01-01
Acting head of Administration at AlbaNova	2004-01-01—2006-06-30
Head of Administration at the School of Biotechnology. KTH	2000-11-13 – 2003-12-31
Konsultant, Manpower AB	2000-08-21 – 2000-11-12
Admiistrator Economy, Linköping University	1974-11-01 -- 2000-08-20

Chairman (1987-2000) and member of the board(1985-1987) at the Union ST-ATF, Linköping University (1.300 members).

Member of the project group that organized the Conference for administrators at Universities in Sweden1994. (work during 1991-1995), (1000 participants).

Education:

HR education,Stockholm University, 5 p	2001
Labor law Örebro University, 10 p	1988
Business economy, A3, Linköping University 20 p	1981
Administrative technique, Linköping University, 20 p	1980
Business economy, A2, Linköping University, 20 p	1977
Jurisprudence, Linköping Universitet, 10 p	1977

During the time I worked at AlbaNova, I also worked part time at the House of Science, and part time to implement the KTH System VIS concerning HR.

Curriculum Vitae

Elizabeth Yang

Lindevägen 54
120 48 Enskede Gård
Födelsedata: 85-08-04
Mobil: 073- 460 27 89
E-post: elizabeth_y8@hotmail.com

UTBILDNING

2011 (april) **Ekonomie kandidatexamen inom företagsekonomi, Stockholms universitet**

2010 - 2011 **Marshall University, WV, USA** *(utlandsstudier)*
(aug – jan) Studerade diverse ekonomikurser i delstaten West Virginia.

2009 – 2010 **Fudan University, Shanghai, Kina** *(utlandsstudier)*
(aug – jan) Studerade kinesiska ett halvår på ett av Kinas mest kända universitet.

2009 **Kandidatkurs inom företagsekonomi, Stockholms universitet**
(jan - juni)

2005 - 2008 **Fristående kurser inom ekonomi, Södertörns högskola, Stockholm**
(aug – dec)

2001-2004 **Naturvetenskaplig gymnasieutbildning, Kungsängsskolan, Sala**

ARBETSLIVSERFARENHET

2012 **KTH**, Scientific Program Coordinator, Economic Officer (heltidstjänst)
(mars – ff) Jag ansvarar för att anordna program, seminarier och workshops för forskare, doktorander och professorer som kommer från utlandet. Budget, faktura och reseutbetalningar är några av mina ekonomiska arbetsuppgifter.

2012 **Mulberry NK**, butikssäljare, (varannan lördag)
(mars –juni)

2010 **Toyota Financial Services**, back office, kreditavdelning (sommarjobb)
(juni – aug) Tjänsten satte stort fokus på noggrannhet och effektivitet då den involverade transaktioner av stora summor och arbetsuppgifter styrda av hårt satta deadlines.

2009 **IKEA Kungens Kurva,** restaurangkassörska (sommarjobb)
(juni – aug) Arbetet bestod främst av kassatjänst men innebar också att flexibelt kunna rycka in och arbeta på de områden där det behövdes hjälp. Snabbhet och stresstålighet var egenskaper som uppskattades här.

2008 - 2009 **Södertörns högskola,** studentambassadör (extrajobb)
(feb - feb) Uppdraget var att marknadsföra och föreläsa om Södertörns högskola för att värva nya studenter. Besök på gymnasieskolor, presentationer och mässdeltagande var några av arbetsuppgifterna. Jag presterade bra ifrån mig genom att vara social, utåtriktad och initiativtagande.

2007 & 2008 **Swedbank AB**, back office, supportavdelning (sommarjobb)
(juni – aug) Mina arbetsuppgifter bestod av telefonsupport till företag för identifiering av inbetalningar gjorda av bankens kunder över Internet. I uppdraget ingick även visst utredningsarbete samt skriftlig kontakt med företag och myndigheter.

2006 - 2009 **Södertörns högskolebibliotek,** biblioteksassistent (extrajobb)
(aug - juni) Tjänsten innebar att hjälpa studenterna med informationssökning, utlåning av böcker samt kassahantering. I denna roll krävdes det att jag var samarbetsvillig, serviceinriktad samt flexibel.

ÖVRIGA MERITER

2008 **Projektledare för Economics-day (**www.e-day.se**)** *(förtroendevald, ideellt)*
(april-okt) E-day är främst ekonomernas arbetsmarknadsdag på Södertörns högskola. Jag ansvarade för en projektgrupp på 12 personer samt en budget på 300 000 kr. Det var 25 utställare på mässan med cirka 800 besökare och vi gjorde en vinst på drygt 100 000 kr.

2007-2009 **Studentrepresentant i biblioteksrådet** *(arvoderad)*
Uppdraget innebar att jag skulle göra studenternas röster hörda genom att framföra deras synpunkter på högskolans bibliotek på sammanträdena.

2007-2009 **Studentrepresentant i arbetsmiljökommittén** *(arvoderad)*
Tjänsten innefattade dokumentation, sammanställning och rapportering av arbetsmiljökommitténs sammanträden till ansvariga inom kåren.

2006-2007 **Suppleant i kårfullmäktige** *(ideellt)* under läsåret på Södertörns högskolas studentkår, som är kårens högsta beslutande organ. Vi arbetade för att öka studenternas inflytande på Södertörns högskola.

2006-2007 **Ansvarig för festutskottet** *(ideellt)* under läsåret på Södertörns högskola där jag ansvarade för planering och organisation av arbetet med och kring festligheterna.

2005-2006 Under detta läsår var jag aktiv i följande *ideella* verksamheter:

Klubbmästeriet (Södertörns högskolas pub). På festerna arbetade jag i baren, garderoben samt kassan.
Internationella Utskottet, som arrangerar aktiviteter för Södertörns utbytesstudenter. Själv var jag fadder till en fransk samt en kinesisk utbytesstudent. **Economics-day 2006** (funktionär)
Under mässan arbetade jag bl.a. i caféet och i receptionen.
Andrahandsbokhandeln
Här har jag arbetat periodvis i flera år. Vi säljer begagnad kurslitteratur som är inlämnade från studenterna.

SPRÅKKUNSKAPER

Svenska: Modersmål.
Engelska: Flytande i tal, skrift, hör- och läsförståelse.
Kinesiska: Flytande i tal- och hörförståelse. Begränsade kunskaper i skrift och läsförståelse.

DATORKUNSKAPER

God datorvana med grundkunskaper i Officepaketet.

(Referenser lämnas på begäran)

Curriculum Vitae - Iouri A. Belokopytov

Personal information

Full name: *Belokopytov, Iouri Andreevich*

Born: *9 August 1947, Moscow, USSR*

Citizenship: *Sweden, Russia*

Education

Jun. 1971: *MS in Physics, Moscow Institute of Physics and Technology (FizTech), USSR*

Aug. 1979: *PhD in Mathematical Physics, Institute for High Energy Physics, Serpukhov, USSR*

Current position

2006 - present: *Head of Computing (part time), Nordita*

2001 - present: *Head of Computing (part time), AlbaNova*

Previous positions

1971 - 1997: *Researcher, Institute for High Energy Physics, Serpukhov, Russia*

1976 - 2012: *Visiting scientist, CERN, Geneva*

- *Software developer for the Big European Bubble Chamber, European Hybrid Spectrometer*
- *Database group leader of LEP DELPHI experiment*

1997 - 2012: *Head of Computing, Fysikum, Stockholm University*

Publications

294 publications, h-index 43, 3 most citated:

- *Precision electroweak measurements on the Z resonance By: Schael, S; Barate, R; Bruneliere, R; et al. Group Author(s): ALEPH Collaborat; DELPHI Collaborat; L3 Collaborat; et al. PHYSICS REPORTS-REVIEW SECTION OF PHYSICS LETTERS Volume: 427 Issue: 5-6 Pages: 257-454 Published: MAY 2006*
- *Performance of the DELPHI detector By: Abreu, P; Adam, W; Adye, T; et al. NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT Volume: 378 Issue: 1-2 Pages: 57-100 Published: AUG 11 1996*
- *MEASUREMENT OF THE MASS AND WIDTH OF THE Z0-PARTICLE FROM MULTIHADRONIC FINAL-STATES PRODUCED IN E+E- ANNIHILATIONS By: AARNIO, P; ABREU, P; ADAM, W; et al. PHYSICS LETTERS B Volume: 231 Issue: 4 Pages: 539-547 Published: NOV 16 1989*

Curriculum Vitae — Hans v. Zur-Mühlen

Date of birth:	5 September 1962
Nationality:	Swedish
Work address:	Nordita Roslagstullsbacken 23 SE–106 91 Stockholm, Sweden +46 8 5537 8423 hvzm@nordita.org
Home Address:	Ringvägen 114 SE–116 61 Stockholm, Sweden +46 76 632 80 17 hans.muhlen@bredband.net

EDUCATION

- 1994—1995, Multimedia production 10 credits, KTH Haninge
- 1986—1987, Philosophy of Science 15 credits, Stockholm University
- 1986—1996, Calligraphy, for Lars Laurentii and Mona Gordon
- 1985—1989, Graduate studies, Stockholm University
- 1981—1985, Masters Degree in Physics, Stockholm University, April 1985.

EMPLOYMENT

KTH Royal Institute of Technology

- 2007—, Nordita: research engineer (web development, computing, administration, graphical design)
- 2008—2009, AlbaNova: research engineer (web development, computing)
- 1985, Dept. of Machine Technology: teacher (physics courses)
- 1984, 1986, Dept. of Physics: teching assistant, teacher (physics courses)

Stockholm University

- 1985—2007, Dept. of Physics: assistant, since 1993 research engineer (web development, teaching computing courses)

Guideline

- 1995—1997, Internet evangelism seminars

Helle Kiilerich
Nationality: Danish
Born 24.11.1943
e-mail : helle@nbi.ku.dk
phone: + 45 3532 5227

Employment:

1.1.2015- present	Niels Bohr Institutet, senior status, preparing a book about 'Nordita 50 years in Copenhagen'.
1.1.2006-31.12.2014	Niels Bohr Institutet – International Academy/ Nordita
1.01.1964- 31.12.2006	Nordita, Copenhagen

Hired as a secretary in 1964, from 1972 in charge of the administration and later head of administration and secretary to the Director and the Nordita Board.

1997	Copenhagen University, Master's degree in political sciences
1974-1978	Public administration – courses (civil service college)
1970-1972	Public administration – courses (civil service college)

B. Researcher mobility

B1. Visiting PhD students at Nordita

Table 1: Vising PhD students (2010–2014).

Name, title	home institution	duration	year
Brynjolfsson, Erling, Mr.	Univ. Iceland (Reyjavik)	1 month	2010
Melczarek, Jakob Francizek, Mr.	Univ. Warsaw	1 month	2010
Durka, Remigiusz, Mr.	Univ. Wroclaw	1 month	2010
Nissinen, Jaakko, Mr.	Univ. Oslo	1 month	2011
Schoo, Robbert, Mr.	Univ. Utrecht	1 month	2011
Karlewski, Christian, Mr.	Univ. Bielefeld	4 month	2011
Cole, Elisabeth, Mr.	Univ. Helsinki	1.5 month	2013
Väisälä, Miikka, Mr.	Univ. Helsinki	1 month	2013
Dunn, Benjamin, Mr.	NTNU Trondheim	1 month	2012
Kyriienko, Oleksandr, Mr.	Univ. Iceland (Reyjavik)	1.5 month	2012
Di Bernardo, Giuseppe, Mr.	Univ. Gothenburg	1+1 month	2009
Heinze, Martin, Mr.	Humbold Univ. Berlin	2 month	2012
Bo, Stefano, Mr.	Univ. Torino	2 month	2011
Snellman, Jan, Mr.	Univ. Helsinki	1 month	2011
Greitz, Jesper, Mr.	King's College London	2 month	2012
Münkler, Hagen, Mr.	Humbold Univ. Berlin	1 month	2014
Pollock, Jonas, Mr.	Humbold Univ. Berlin	1 month	2014
Savenko, Ivan, Mr.	Univ. Iceland (Reyjavik)	1 month	2012
Shenderovich, Igor, Mr.	Saclay (Paris)	2 month	2011
Keränen, Ville, Mr.	Univ. Helsinki	3 month	2010
Gordon, James, Mr.	Univ. Vancouver	1 month	2013
Sundell, Peter, Mr.	Univ. Turku	1+1 month	2013
Anderson, Louise, Ms.	Gothenburg Univ.	6 month	2014

B2. Visits by Nordita scientists

Table 2: Summary of visits by Nordita staff for more than 2 week (2010–2014).

Name, title	Site	purpose	duration	year
Hossenfelder, S., Dr.	Perimeter Inst.	collaboration	2 weeks	2010
Guerrero, Gustavo, Dr.	Helsinki	collaboration	2 weeks	2010
Martikainen, J.P., Dr.	Helsinki	collaboration	2 weeks	2010
Ardonne, E., Dr.	Aspen	collaboration	2 weeks	2010
Hossenfelder, S., Dr.	Perimeter Inst.	collaboration	3 weeks	2010
Brandenburg, A., Prof.	New York	collaboration	2 weeks	2010
Zarembo, Konstantin, Prof.	Perimeter Inst.	collaboration	3 weeks	2010
Guerrero, Gustavo, Dr.	Helsinki	collaboration	2 weeks	2010
Guerrero, Gustavo, Dr.	Columbia	collaboration	4 weeks	2010
Giangreco, Valentina, Dr.	Perugia	collaboration	3 weeks	2010
Chan, C.K., Dr.	Santa Barbara	collaboration	4 weeks	2011
Brandenburg, A., Prof.	Santa Barbara	collaboration	4 weeks	2011
Di Vecchia, Paolo, Prof.	Firenze	collaboration	4 weeks	2011
Harmark, Troels, Dr.	Firenze	collaboration	3 weeks	2011
Mitra, Dhrubaditya, Dr.	Santa Barbara	collaboration	3 weeks	2011
Pinheiro, Fernanda, Ms.	Cargese/France	school	2 weeks	2011
Zarembo, Konstantin, Prof.	Cargese	conference	2 weeks	2011
Zarembo, Konstantin, Prof.	Perimeter Inst.	collaboration	2 weeks	2011
Di Vecchia, Paolo, Prof.	Pohang	collaboration	14 days	2011
Zarembo, Konstantin, Prof.	Paris	collaboration	6 weeks	2011
Volin, D., Dr.	Paris	collaboration	3 weeks	2011
Brandenburg, A., Prof.	Helsinki	collaboration	2 weeks	2011
Chan, C.K., Dr.	Hong Kong	collaboration	5 weeks	2011
Del Sordo, F., Mr.	Catania	collaboration	4 weeks	2012
Candelaresi, S., Mr.	Durham	collaboration	4 weeks	2012
Ardonne, E., Dr.	Princeton	collaboration	2 weeks	2012
Brandenburg, A., Prof.	Pittsburg	collaboration	2 weeks	2012
Mitra, Dhrubaditya, Dr.	Boulder	collaboration	2 weeks	2012
Pinheiro, Fernanda, Ms.	Trieste & Paris	schools	2+2 weeks	2012
Zarembo, Konstantin, Prof.	Jerusalem	collaboration	3 weeks	2012
Brandenburg, A., Prof.	Helsinki	collaboration	2 weeks	2012
Chan, C.K., Dr.	Beijing	collaboration	2 weeks	2012
Zarembo, Konstantin, Prof.	Waterloo	collaboration	3 weeks	2013

Table 3: Summary of visits by Nordita staff for more than 2 week (continued).

Name, title	Site	purpose	duration	year
Warnecke, J., Mr.	Helsinki	collaboration	3 weeks	2013
Del Sordo, F., Mr.	Catania	collaboration	4 weeks	2013
Goutéraux, B., Dr.	US & Canada	conferences	21 days	2013
Pinheiro, Fernanda, Ms.	Barcelona & Boulder/US	collaboration & school	4+4 weeks	2013
Brandenburg, A., Prof.	Boulder	collaboration	2 weeks	2013
van Eysden, C. A., Dr.	Trento, Italy	school	4 weeks	2013
Goutéraux, B., Dr.	UK	school	14 days	2013
Jabbari, Sarah, Ms.	Sao Paulo	school	14 days	2013
Karak, B.B., Dr.	Helsinki	collaboration	3+3 weeks	2013
Brandenburg, A., Prof.	Copenhagen	collaboration	2 weeks	2013
Koivisto, Tomi, Dr.	Helsinki	collaboration	2 weeks	2014
van Eysden, C. A., Dr.	Melbourne	collaboration	3 weeks	2014
Pinheiro, Fernanda, Ms.	Barcelona	collaboration	7 weeks	2014
Gudnason, Bjarke, Dr.	Japan	collaboration	3 weeks	2014
Losada, Illa R., Ms.	Stanford	collaboration	21 days	2014
Krikun, Alexander, Dr.	Moscow	collaboration	21 days	2014
Di Vecchia, Paolo, Prof.	Torino	collaboration	14 days	2014
Singh, Nishant, Dr.	IUCAA, Pune	collaboration	18 days	2014
Pinheiro, Fernanda, Ms.	Santa Barbara	collaboration	3 weeks	2014
Gudnason, Bjarke, Dr.	Japan	collaboration	5 weeks	2014
Gudnason, Bjarke, Dr.	China	collaboration	7 weeks	2014
Gudnason, Bjarke, Dr.	Japan	collaboration	2 months	2014
Gudnason, Bjarke, Dr.	China	collaboration	2 months	2014
Jabbari, Sarah, Ms.	IUCAA, Pune	collaboration	18 days	2014
Zarembo, Konstantin, Prof.	Stony Brook	collaboration	3 months	2014
Abergel, D., Dr.	USA	conferences	3 weeks	2014
Brandenburg, A., Prof.	Göttingen	collaboration	2 weeks	2013
Gudnason, Bjarke, Dr.	China	collaboration	3 months	2014
Guica, Monica, Dr.	Harvard	collaboration	1 months	2014
Johansson, Henrik, Dr.,	Hong Kong/Taiwan	conferences	2 weeks	2014

B3. Nordita visitor program

Table 4: Summary of visits to Nordita

Name	organization	duration	year
Dr. Svedin, Andreas	Columbia Univ. (New York)	8 weeks	2010
Dr. Botticella, Maria-Teresa	Queen's Univ. London	3 weeks	2010
Dr. Bron, Emeric	École Polytechnique, France	26 weeks	2010
Dr. Bryjólfsson, Erling J.	Univ. Iceland	2 weeks	2010
Dr. Chan, Chi-Kwan	Steward Observatory	5+3 weeks	2010
Dr. Durka, Remigiusz	Univ. of Wroclaw	5 weeks	2010
Dr. Gautason, Fridrik	Univ. Iceland	3 weeks	2010
Prof. Jayawardhana, Ray	Univ. Toronto	4 weeks	2010
Dr. Keränen, Ville	Univ. Oxford	9 weeks	2010
Dr. Khajehnabi, Fazeleh	Univ. College Dublin	9 weeks	2010
Dr. Kitchatinov, Leonid	Inst. for Solar-Terrestrial Phys.	5 weeks	2010
Prof. Kleeorin, Nathan	Univ. Ben-Gurion	3 weeks	2010
Dr. Lahtinen, Ville	Univ. Amsterdam	3 weeks	2010
Dr. Maeda, Keiichi	Kavli IPMU (Tokyo)	2 weeks	2010
Dr. Mielczarek, Jakub F.	Jagiellonian Univ.	4 weeks	2010
Dr. Nowling, Sean	Jamestown Community College	7+6 weeks	2010
Dr. Nurmi, Sami	Univ. Helsinki	6 weeks	2010
Dr. Pinton, Jean-Franois	IN2P3 (Paris)	2 weeks	2010
Prof. Rädler, Karl-Heinz	Univ. Potsdam	4+3+2+3 w.	2010
Prof. Rogachevskii, Igor	Univ. Ben-Gurion	3 weeks	2010
Prof. Roudi, Yasser	Kavli Inst. - NTNU	3+36 weeks	2010
Dr. Senovilla, Jose	Univ. of Bilbao	2 weeks	2010
Dr. Shadmehri, Mohsen	Univ. Natl. Maynooth (Ireland)	9 weeks	2010
Dr. Stefánsson, Sigurdur	Univ. Uppsala	4 weeks	2010
Prof. Talamelli, Alessandro	Univ. Bologna	3 weeks	2010
Dr. Yokoi, Nobumitsu	Univ. Tokyo	4 weeks	2010
Dr. Zieme, Stefan	Humboldt-Univ. Berlin	5 weeks	2010
Dr. Abbott, Michael	TIFR, Mumbai	2 weeks	2011
Dr. Behringer, Hans	Univ. Mainz	3+2 weeks	2011
Dr. Bergman, Andrew	Univ. Princeton	12 weeks	2011
BO, Stefano	Univ. Torino	9 weeks	2011
Dr. Bykov, Dmitri	Max Planck Inst.	4+4 weeks	2011
Prof. Cabello, Adan	Univ. Seville	3+11+2 w.	2011
Dr. Camarri, Simone	Univ. of Pisa	3 weeks	2011
Dr. Cantoni, Virginio	Facolt di Ingegneria	12 weeks	2011
Dr. Carlsson, Carl	Univ. Mainz	3 weeks	2011
Dr. Dekel, Erez	Weizmann Inst. of Science	7 weeks	2011
Dr. Giannetti, Flavio	Univ. Salerno	3 weeks	2011
Dr. Hannachi, Abdel	MISU	2 weeks	2011
Dr. HE, Andong	Univ. ICERM Brown	37 weeks	2011
Dr. Hubbard, Alexander	Am. Museum Natl. History	2 weeks	2011
Dr. Jenks, Phillip	Univ. Arizona	2 weeks	2011
Dr. Karlewski, Christian	Univ. Bielefeld	24 weeks	2011
Dr. Kernen, Ville	Univ. Oxford	3 weeks	2011
Prof. Kleeorin, Nathan	Univ. Ben-Gurion	2 weeks	2011
Prof. Leinaas, Jon Magne	Univ. Oslo	5 weeks	2011
Dr. Manyuhina, Oksana	Univ. Syracuse	13 weeks	2011
Dr. Nissinen, Jaakko	Univ. Oslo	12 weeks	2011
Prof. Rädler, Karl-Heinz	Univ. Potsdam	3+3+3 w.	2011
Prof. Rheinhardt, Matthias	Univ. Helsinki	3 weeks	2011
Prof. Rogachevskii, Igor	Univ. Ben-Gurion	2 weeks	2011
Dr. Schoo, Robbert	Univ. Utrecht	20 weeks	2011
Dr. Senovilla, Jose	Univ. of Bilbao	2 weeks	2011
Dr. Shenderovich, Igor	CEA Saclay	9 weeks	2011
Mr. Snellman, Jan	Univ. Helsinki	6 weeks	2011
Dr. Svedin, Andreas	Univ. Columbia	4 weeks	2011

Table 5: Summary of visits to Nordita

Name	organization	duration	year
Prof. Talamelli, Alessandro	Univ. Bologna	3+2+4 w.	2011
Dr. Tsagas, Christos	Univ. Aristotle	10 weeks	2011
Dr. Volin, Dmytro	Trinity College Dublin	4 weeks	2011
Dr. Zeng, Hongli	Aalto Univ.	7 weeks	2011
Prof. Björnsson, Gunnlaugur	Univ. Iceland	13 weeks	2012
Dr. Bykov, Dmitri	Max Planck Inst.	6 weeks	2012
Dr. Chan, Chi-Kwan	Steward Observatory	8 weeks	2012
Dr. Devlen, Ebru	Univ. Ege	2+5 weeks	2012
Mr. Di Bernardo, Giuseppe	Univ. of Gothenburg	6 weeks	2012
Dr. Gupta, Anupam	Univ. Tor Vergata Rome	9 weeks	2012
Dr. He, Andong	Univ. ICERM Brown	26 weeks	2012
Dr. Heinze, Martin	Desy	11 weeks	2012
Prof. Kleeorin, Nathan	Univ. Ben-Gurion	4+3 weeks	2012
Dr. Kwiatkowski, Damian	Univ. Warsaw	4 weeks	2012
Dr. Kyriienko, Oleksandr	Univ. Iceland	6 weeks	2012
Dr. Leurent, Sbastien	ENS (Paris)	2 weeks	2012
Prof. McInnes, Brett	Univ. National	23 weeks	2012
Prof. Nair, Parameswaran	Univ. City College of City	2 weeks	2012
Prof. Pandit, Rahul	Indian Inst. of Science	2 weeks	2012
Prof. Rädler, Karl-Heinz	Univ. Potsdam	3 weeks	2012
Dr. Rempel, Erico	Inst. Aeronaut. Techn. ITA (Brazil)	3 weeks	2012
Prof. Rogachevskii, Igor	Univ. Ben-Gurion	2+2+2+3 w.	2012
Prof. Ruzmaikin, Alexander	Calif. Inst. Technology	2 weeks	2012
Dr. Savenko, Ivan	Aalto Univ.	6 weeks	2012
Dr. She, Jian-Huang	Los Alamos	5 weeks	2012
Prof. Talamelli, Alessandro	Univ. Bologna	6+3 weeks	2012
Dr. Wijewardhana, L. C. Rohana	Univ. Cincinnati	7 weeks	2012
Dr. Young, Donovan	Univ. London	2 weeks	2012
Prof. Balitsky, Ian	Jefferson Lab	2 weeks	2013
Dr. Cagnazzo, Alessandra	DESY	5 weeks	2013
Prof. Chitre, Kumar	Univ. Mumbai	4 weeks	2013
Ms. Cole, Elizabeth	Univ. Helsinki	4 weeks	2013
Dr. Devlen, Ebru	Univ. Ege	3 weeks	2013
Dr. Heinze, Martin	Desy	24 weeks	2013
Prof. Kleeorin, Nathan	Univ. Ben-Gurion	3 weeks	2013
Mr. Kobyakov, Dmitry	Umeåå Unversity	3 weeks	2013
Dr. Lasia, Martha	CSIC	23 weeks	2013
Prof. Liberman, Michael	Univ. Uppsala	52 weeks	2013
Dr. Palmkvist, Jakob	IHÉS	7 weeks	2013
Prof. Rädler, Karl-Heinz	AIP (Potsdam)	4+2+2+3 weeks	2013
Dr. Raichur, Harsha	Raman Res. Inst. Bangalore	65 weeks	2013
Prof. Rheinhardt, Matthias	Univ. Helsinki	2 weeks	2013
Prof. Rogachevskii, Igor	Univ. Ben-Gurion	2+3+2 weeks	2013
Prof. Shukurov, Anvar	Univ. of Newcastle	3 weeks	2013
Prof. Spaldin, Nicola	Materials Theory, ETH Zürich	5 weeks	2013
Prof. Subramanian, K.	IUCAA (Pune, India)	4 weeks	2013
Mr. Väisälä, Miikka	Univ. Helsinki	3 weeks	2013
Prof. Östlund, Stellan	Univ. Gothenburg	3 weeks	2014
Dr. Beresnyak, Andrey	Naval Research Laboratory	9 weeks	2014
Ms. Bhat, Pallavi	IUCAA,India	4 weeks	2014
Dr. Golovnev, Alexey	Univ. St. Petersburg State	3 weeks	2014
Dr. Guarnieri, Filippo	Max Planck Inst.	2+2 weeks	2014
Prof. Kleeorin, nathan	Univ. Ben-Gurion	2 weeks	2014
Dr. Pollok, Jonas	Univ. Humboldt	3 weeks	2014
Prof. Rogachevskii, Igor	Univ. Ben-Gurion	4+2 weeks	2014
Dr. Sato, Yoshiki	Univ. Kyoto	4 weeks	2014

B4. Visits to Nordita programs and schools (2 weeks and longer)

Table 6: Number of participants in the 43 programs and schools

participants	name of event
31	Nordita Winter School on Dynamos 2010: above, below, and in the laboratory
12	The influence of confinement on phase transitions
42	Turbulent boundary layers and Turbulent Combustion
40	Integrability in String and Gauge Theories
26	Quantum solids, liquids, and gases
31	Quantum Matter in Low Dimensions: Opportunities and Challenges
28	Quantum Information
21	Random Geometry and Applications
22	Nordita Winter School on Condensed Matter Physics 2011
20	The Return of de Sitter
22	Applications of network theory: from mechanisms to large-scale structure
18	Predictability + School on Data Assimilation
19	String Phenomenology
25	Dynamo, Dynamical Systems and Topology
26	Studying Quantum Mechanics in the Time Domain
26	Foundations and Applications of Non-Equilibrium Statistical Mechanics
25	Geometry of Strings and Fields
21	Nordita Winter School 2012 on Theoretical Particle Physics
32	Exact Results in Gauge-String Dualities
17	Dynamics of Biomolecular Processes
15	Biology and Physics of Information Processing
23	Origin of Mass 2012
35	Topological States of Matter
16	Spin-Related Phenomena in Mesoscopic Transport
16	The Holographic Way: String Theory, Gauge Theory and Black Holes
13	Perspectives of Fundamental Cosmology
13	Nordita Winter School 2013 in High-Energy Astrophysics
24	Pushing the Boundaries with Cold Atoms
7	Stochastic Thermodynamics
35	Differential Rotation and Magnetism across the HR Diagram
19	Stability and Transition
18	Photo-Evaporation in Astrophysical Systems
19	Beyond the LHC
21	Superconductivity: the Second Century
17	Lyman Alpha as an Astrophysical Tool
22	Nordita Winter School 2014 on Condensed Matter Physics
19	News in Neutrino Physics
20	What is the Dark Matter?
25	Dynamics of Particles in Flows: Fundamentals and Applications
27	Novel Directions in Frustrated and Critical Magnetism
43	Quantum Engineering of States and Devices
22	Computational Challenges in Nuclear and Many-Body Physics
29	Water the Most Anomalous Liquid
1002	total

Table 7: Summary of visits in connection with the "Nordita Winter School on Dynamos 2010: above, below, and in the laboratory" (11 January – 22 January 2010)

Name	organization	duration
Baggaley, Andrew	Univ. Newcastle	2 weeks
Berkoff, Nikolai	Univ. Leeds	2 weeks
Buckley, Matthew	Univ. Newcastle	2 weeks
Cole, Elizabeth	Univ. Helsinki	2 weeks
Davies, Christina	Univ. Leeds	2 weeks
Dietrich, Wieland	Max Planck Inst.	2 weeks
Gent, Frederick	Univ. Newcastle	2 weeks
Heyner, Daniel	TU Braunschweig	2 weeks
Dr. Hubbard, Alexander	American Museum of Natural History	2 weeks
Dr. Käpylä, Petri	Univ. Helsinki	2 weeks
Kulpa-Dybel, Katarzyna	Univ. Jagiellonian	2 weeks
Lipsbergs, Guntis	Univ. Latvia	2 weeks
Magone, Liga	Univ. Latvia	2 weeks
Mak, Julian	Univ. Leeds	2 weeks
Mann, Peter	Univ. Cambridge	2 weeks
Markidis, Stefano	Univ. Illinois at Urbana-Champaign	2 weeks
Mukherjee, Dipanjan	IUCAA (Pune, India)	2 weeks
Passos, Dário	CENTRA / Inst. Superior Tcnico	2 weeks
Popova, Helen	Univ. Moscow State	2 weeks
Richardson, Katy	Univ. Cambridge	2 weeks
Siejkowski, Hubert	Univ. Jagiellonian	2 weeks
Smith, Andrew	Univ. Newcastle	2 weeks
Snellman, Jan	Univ. Helsinki	2 weeks
Stefan, Martin	Univ. Umeå	2 weeks
Stepanovs, Deniss	Univ. St. Petersburg State	2 weeks
Teed, Robert	Univ. Leeds	2 weeks
Väisälä, Miikka	Univ. Helsinki	2 weeks
Dr. Valiev, Damir	Univ. Umeå	2 weeks
Dr. Warnecke, Jörn	Max Planck Inst.	2 weeks
Dr. Zamanian, Jens	Univ. Umeåå	2 weeks
Dr. Zolotova, Nadezhda	St. Petersburg State Univ.	2 weeks

Table 8: Summary of visits in connection with the program on "The influence of confinement on phase transitions (part 1)" (15 February – 1 March 2010)

Name	organization	duration
Dr. Ahlberg, Martina	Univ. Uppsala	2 weeks
Dr. Arnalds, Unnar	Department of Physics and Astronomy	2 weeks
Dr. Banks, Simon	Univ. College London	2 weeks
Dr. Bergman, Anders	Univ. Uppsala	3 weeks
Prof. Black-Schaffer, Annica	Univ. Uppsala	3 weeks
Hellsvik, Johan	Department of Physics and Astronomy	2 weeks
Prof. Hjörvarsson, Björgvin	Univ. Uppsala	3 weeks
Dr. Horsdal, Mats	Univ. Leipzig	2 weeks
Dr. Karimipour, Masoud	angstrom lab,department of material physics	3 weeks
Prof. Shelykh, Ivan	Univ. Iceland	3 weeks
Dr. Taroni, Andrea	Univ. Uppsala	2 weeks
Dr. Zamani, Atieh	Physics & Astron., Uppsala Univ.	2 weeks

Table 9: Summary of visits in connection with the program on "Turbulent boundary layers and Turbulent Combustion" (6 April – 28 May 2010)

Name	organization	duration
Dr. Abe, Hiroyuki	Japan Aerospace Exploration Agency	4 weeks
Dr. Albin, Eric	CORIA UMR 6614 CNRS	4 weeks
Dr. Babkovskaia, Natalia	Univ. Helsinki	4 weeks
Prof. Bai, Xue-Song	Univ. Lund	4 weeks
Dr. Bourguignon, Jean-Loup	California Inst. of Technology	4 weeks
Dr. Cimarelli, Andrea	Univ. Bologna	4 weeks
Dr. Coleman, Gary	Univ. Southampton	3 weeks
Prof. Cossu, Carlo	CNRS - Inst. de Mecanique des Fluides de Toulouse	3 weeks
Prof. D'Angelo, Yves	INSA CORIA CNRS	4 weeks
Prof. Driscoll, James	Univ. Michigan	3 weeks
Prof. Fureby, Christer	Swedish Defence Research Agency - FOI	4 weeks
Dr. Gruber, Andrea	SINTEF Energy Research	3 weeks
Dr. Haugen, Nils Erland L.	SINTEF Energy Research	5 weeks
Dr. Hwang, Yongyun	Ecole Polytechnique	4 weeks
Dr. Imayama, Shintaro	Univ. Nagoya	4 weeks
Prof. Jimenez, Javier	Univ. Politcnica	3 weeks
Dr. KäpyLä, Petri	Univ. Helsinki	4 weeks
Prof. Kleeorin, Nathan	Univ. Ben-Gurion	3 weeks
Dr. Leveugle, Benoit	INSA CORIA CNRS	4 weeks
Prof. Maciel, Yvan	Univ. Laval	3 weeks
Dr. Mathis, Romain	Univ. Melbourne	2 weeks
Prof. Matsubara, Masaharu	Univ. Shinshu	3 weeks
Prof. Morrison, Jonathan	Imperial College	3 weeks
Dr. Oran, Elaine	US Naval Research Laboratory	2 weeks
Prof. Paschereit, Christian Oliver	Hermann-Föttinger-Inst. Berlin	2 weeks
Dr. Poludnenko, Alexei	Naval Research Laboratory	3 weeks
Dr. Rüedi, Jean-Daniel	Univ. Bologna	4 weeks
Prof. Rist, Ulrich	Univ. Stuttgart	2 weeks
Prof. Rogachevskii, Igor	Univ. Ben-Gurion	3 weeks
Dr. Sabelnikov, Vladimir	ONERA (Toulouse)	4 weeks
Prof. Sandham, Neil	Univ. Southampton	4 weeks
Dr. Sardina, Gaetano	Univ. Rome La Sapienza	3 weeks
Dr. Seki, Daisuke	Univ. Shinshu	4 weeks
Dr. Shan, Feng	Univ. Nagoya	2 weeks
Prof. She, Zhen-Su	State Key Lab of Turbulence and Compl Sys	3 weeks
Dr. Sjöstrand, Marianne	CORIA UMR 614 CNRS	3 weeks
Dr. Stalio, Enrico	Univ. di Modena e Reggio Emilia	2 weeks
Dr. Swaminathan, Nedunchezhian	Univ. Cambridge	4 weeks
Prof. Talamelli, Alessandro	Univ. Bologna	8 weeks
Dr. WeydahL, Torleif	SINTEF Energy Research	2 weeks
Prof. Williams, Forman	UCSD	2 weeks
Prof. Yakhot, Victor	Univ. Boston	2 weeks

Table 10: Summary of visits in connection with the program on "Integrability in String and Gauge Theories; AdS/CFT Duality and its Applications" (31 May – 9 July 2010)

Name	organization	duration
Prof. Ahn, Changrim	Univ. Inst. for Early Univ. Womans	3 weeks
Prof. Bajnok, Zoltn	Theor. Physics Research Group of HAS	2 weeks
Prof. Bak, Dongsu	Univ. Seoul	3 weeks
Dr. Banerjee, Nabamita	Univ. Utrecht	2 weeks
Dr. Bedoya Delgado, Oscar Andres	Univ. de Sao Paulo	2 weeks
Dr. Benincasa, Paolo	Univ. Durham	2 weeks
Dr. Calian, Violeta	Univ. Iceland	2 weeks
Prof. Drukker, Nadav	King's College London	3 weeks
Dr. Dutta, Suvankar	Univ. Swansea	2 weeks
Prof. Forini, Valentina	Univ. Humboldt	2 weeks
Dr. Giangreco Puletti, Valentina	Univ. Iceland	6 weeks
Prof. Gorsky, Alexander	ITEP	2 weeks
Dr. Henn, Johannes	Univ. Humboldt	2 weeks
Dr. Janik, Romuald	Univ. Jagiellonian	2 weeks
Prof. Kazakov, Vladimir	LPTENS	2 weeks
Dr. Keski-Vakkuri, Esko	Univ. Helsinki	2 weeks
Dr. Klose, Thomas	Univ. Uppsala	2 weeks
Dr. Kulaxizi, Manuela	Univ. Amsterdam	2 weeks
Dr. Lukowski, Tomasz	Univ. Humboldt	2 weeks
Dr. Matsumoto, Takuya	Univ. of Nagoya	6 weeks
Dr. Mazzanti, Liuba	Univ. Santiago de Compostela	2 weeks
Prof. Nepomechie, Rafael	Univ. Miami	2 weeks
Dr. Parnachev, Andrei	Univ. Leiden	2 weeks
Prof. Petrini, Michela	Univ. Pierre et Marie Curie	2 weeks
Dr. Policastro, Giuseppe	Ecole Normale Superieure	3 weeks
Dr. Quinn, Eoin	Trinity College Dublin	2 weeks
Prof. Rastelli, Leonardo	YITP	3 weeks
Dr. Rej, Adam	Imperial College London	2 weeks
Prof. Roiban, Radu	Univ. Penn State	2 weeks
Prof. Semenoff, Gordon	Univ. British Columbia	2 weeks
Dr. Sever, Amit	Perimeter Inst.	2 weeks
Dr. Suzuki, Ryo	Trinity College Dublin	2 weeks
Prof. Thorlacius, Lárus	Univ. Iceland	5 weeks
Dr. Torrielli, Alessandro	Univ. Surrey	2 weeks
Prof. Tseytlin, Arkady	Imperial College	2 weeks
Prof. Vieira, Pedro	Perimeter Inst.	2 weeks
Dr. Volin, Dmytro	Trinity College Dublin	5 weeks
Dr. Zieme, Stefan	Humboldt-Univ. Berlin	2 weeks
Dr. Zingg, Tobias	ITF Utrecht	6 weeks
Dr. Zwiebel, Benjamin	California Inst. of Technology	3 weeks

Table 11: Summary of visits in connection with the program on "Quantum solids, liquids, and gases" (19 July – 27 August 2010)

Name	organization	duration
Prof. AGTERBERG, Daniel	Univ. Wisconsin - Milwaukee	2 weeks
Dr. BERGMAN, Doron	California Inst. of Technology	3 weeks
Prof. BLACK-SCHAFFER, Annica	Univ. Uppsala	6 weeks
Prof. BRUUN, Georg	Univ. Aarhus	2 weeks
Prof. BULGAC, Aurel	Univ. Washington	2 weeks
CETOLI, Alberto	Univ. Umeå	3 weeks
Dr. CHUNG, Suk Bum	Univ. Stanford	3 weeks
Prof. GALITSKI, Victor	Univ. Maryland	3 weeks
Dr. GUREVICH, Alex	Univ. Florida State	4 weeks
Dr. HACKL, Andreas	California Inst. of Technology	2 weeks
Dr. HERMANNS, Maria	Univ. Cologne	4 weeks
Prof. JOHANSSON, Magnus	Univ. Linköping	2 weeks
Prof. KUKLOV, Anatoly	CUNY	2 weeks
Dr. LäHDE, Timo A.	Aalto Univ.	2 weeks
Prof. LIU, W. Vincent	Univ. Pittsburgh	2 weeks
Dr. LUNDH, Emil	Univ. Umeå	6 weeks
Dr. MäKELä, Harri	Palermo	3 weeks
Dr. MARTIKAINEN, Jani-Petri	Aalto Univ.	6 weeks
Prof. NIKOLIC, Predrag	Univ. George Mason	2 weeks
Prof. PROKOFIEV, Nikolay	Univ. Massachusetts	2 weeks
Dr. REICHHARDT, Charles	Los Alamos National Laboratory	2 weeks
Prof. SHLYAPNIKOV, Georgy	Univ. Paris Sud	2 weeks
Prof. SVISTUNOV, Boris	Univ. Massachusetts	2 weeks
Dr. TURNER, Ari	Univ. California	2 weeks
WONG, Clement	UCLA	2 weeks
Prof. YIP, Sungkit	Inst. of Physics	2 weeks

Table 12: Summary of visits in connection with the program on "Quantum Matter in Low Dimensions: Opportunities and Challenges" (30 August – 24 September 2010)

Name	organization	duration
Dr. Bergholtz, Emil	Max Planck Inst.	2 weeks
Prof. Black-Schaffer, Annica	Univ. Uppsala	4 weeks
Ms. Burrello, Michele	SISSA, Trieste	4 weeks
Dr. Cappelli, Andrea	INFN	2 weeks
Prof. Carmelo, Jose	Univ. Minho	2 weeks
Mr. De Luca, Andrea	Sissa	2 weeks
Prof. Delfino, Gesualdo	SISSA	4 weeks
Mr. Eriksson, Erik	Univ. Gothenburg	4 weeks
Prof. Essler, Fabian	Univ. Oxford	3 weeks
Dr. Estienne, Benoit	Inst. for Theoretical Physics	2 weeks
Mr. Fioretto, Davide	SISSA	4 weeks
Dr. Franchini, Fabio	SISSA	2 weeks
Dr. Fransson, Jonas	Univ. Uppsala	4 weeks
Dr. Huijse, Liza	Univ. Amsterdam	3 weeks
Mr. Jafari Salim, Amir	Univ. Waterloo and Inst. Quantum Comp.	4 weeks
Prof. Japaridze, George	Univ. Ilia State	2 weeks
Prof. Johannesson, Henrik	Univ. Gothenburg	4 weeks
Dr. Kailasvuori, Janik	Max Planck Inst.	2 weeks
Dr. Konik, Robert	Brookhaven National Lab	2 weeks
Dr. Möller, Gunnar	Univ. Cambridge	2 weeks
Mr. Macri, Tommaso	Max Planck Inst.	4 weeks
Dr. Morf, Rudolf	Paul Scherrer Inst.	2 weeks
Mr. Mozgunov, Evgeniy	Landau Inst. for Theoretical Physics	4 weeks
Mr. Mross, David	Massachusetts Inst. of Technology	2 weeks
Prof. Mussardo, Giuseppe	SISSA	2 weeks
Dr. Rutkevich, Sergei	Inst. Solid State Phys. (Minsk)	3 weeks
Dr. Slingerland, Joost	Univ. National	2 weeks
Mr. Ström, Anders	Göteborgs Univ.	2 weeks
Dr. Tezuka, Masaki	Univ. Kyoto	2 weeks
Dr. Vala, Jiri	Univ. Natl Maynooth, Ireland	2 weeks
Dr. Viola, Giovanni	Weizmann Inst. of Science	2 weeks

Table 13: Summary of visits in connection with the program on "Quantum Information" (27 September – 29 October 2010)

Name	organization	duration
Dr. Abderrahim, El Allati	Faculte des Sciences	5 weeks
Dr. ANDERSSON, Erika	Univ. Heriot-Watt	2 weeks
Barbosa, Felippe	Univ. de So Paulo - USP	2 weeks
Prof. BENNETT, Charles	IBM	4 weeks
Prof. BJöRK, Gunnar	Royal Inst. of Technology	5 weeks
Dr. CAVALCANTI, Daniel	Centre for Quantum Technologies	2 weeks
Dr. CHEN, Lin	Center for Quantum Technologies	2 weeks
ENRIQUEZ, Marco	Center for Advanced Studies and Research	4 weeks
Dr. GHIU, Iulia	Univ. Bucharest	3 weeks
HAFIZ, Assad	COMSATS Inst. of Information Technology	5 weeks
KUMAR, Pankaj	Indian Inst. of Technology,Powai	5 weeks
Dr. LARSSON, Jan-åke	Univ. Linköpings	4 weeks
Dr. MARTIKAINEN, Jani-Petri	Aalto Univ.	5 weeks
Dr. MISHRA, P K	BHU	5 weeks
NANDI, Kaushik	Gurudas College	5 weeks
Dr. PAN, Alok	Bose Inst.	3 weeks
PROCOPIO, Lorenzo	Center for Research and Advanced Studies	2 weeks
PYTEL, Justyna	Univ. Inst. of Physics Nicolaus Copernicus	2 weeks
RAHAMAN, Ramij	Univ. Bergen	5 weeks
RASHEL, Masud Rana	Univ. Of Bradford	5 weeks
S. TASCA, Daniel	Univ. Federal do Rio de Janeiro	4 weeks
SABAPATHY, Krishnakumar	Inst. of Mathematical Sciences	5 weeks
Dr. SAGHEER, Alaa	Univ. South Valley	5 weeks
Dr. SEDLAK, Michal	Univ. degli studi di Pavia	3 weeks
SKOWRONEK, Lukasz	Univ. Jagiellonian	5 weeks
Dr. SWILLO, Marcin	Royal Inst. of Technology	5 weeks
Dr. TUGAI, Vadim	Hewlett Packard	4 weeks
Prof. ZWOLAK, Michael	Univ. Oregon State	2 weeks

Table 14: Summary of visits in connection with the program on "Random Geometry and Applications" (1 November – 10 December 2010)

Name	organization	duration
Prof. AMBJøRN, Jan	Univ. Niels Bohr Inst.	6 weeks
Dr. BIALAS, Piotr	Univ. Jagellonian	3 weeks
Prof. BURDA, Zdzislaw	Univ. Jagiellonian	6 weeks
Dr. CALIAN, Violeta	Univ. Iceland	2 weeks
CHASSAING, Philippe	Inst. Elie Cartan	4 weeks
DURHUUS, Bergfinnur	Univ. Copenhagen	6 weeks
Dr. HOLMGREN, Cecilia	INRIA Rocquencourt	5 weeks
Prof. JANKE, Wolfhard	Inst. for Theoretical Physis	6 weeks
Prof. JANSON, Svante	Department of Mathematics	4 weeks
Prof. JOHNSTON, Des	Univ. Heriot-Watt	3 weeks
Prof. JONSSON, Thordur	Univ. Iceland	6 weeks
Dr. KYTOLA, Kalle	Univ. Helsinki	4 weeks
NAPOLITANO, George	Univ. Lund	6 weeks
Prof. NOWAK, Maciej Andrzej	Univ. Jagiellonian	2 weeks
Prof. PETERSSON, Bengt	Univ. Univ. Bielefeld and Humboldt	4 weeks
Dr. STEFNSSON, Sigurur	Univ. Uppsala	6 weeks
Dr. THATTE, Bhalchandra	Univ. Oxford	6 weeks
WäSTLUND, Johan	Univ. Chalmers	4 weeks
Dr. WACLAW, Bartlomiej	Univ. Edinburgh	2 weeks
WHEATER, John	Univ. Oxford	5 weeks
Ass.Prof. ZOHREN, Stefan	Univ. Catolica do Rio de Janeiro	5 weeks

Table 15: Summary of visits in connection with the program on "Nordita Winter School on Condensed Matter Physics 2011" (10 January – 21 January 2011)

Name	organization	duration
AINSWORTH, Robert	Univ. National	2 weeks
Banka, Przemyslaw	Inst. Nucl. Phys. Polish Acad. Sci.	2 weeks
BAZZANELLA, Matteo	Univ. Gothenburg	2 weeks
BOLMATOV, Dmitry (Dima)	Univ. Queen Mary	2 weeks
CHALLA, Aditya	Univ. Of Gothenberg	2 weeks
CIESIELSKI, Dawid	Univ. Wrocaw	2 weeks
DOROSZ, Sven	Univ. Luxembourg	2 weeks
DULLO, Firehun Tsige	Univ. Tromso	2 weeks
GLOWINSKI, Krzysztof	Univ. Jagiellonian	2 weeks
GOKCE, Berkcan	Univ. Middle East Technical	2 weeks
JUCHA, Anna	Univ. Wroclaw	2 weeks
KHALEGHI ARDABILI, Ahad	Univ. Ko	2 weeks
KIM, Hee Dae	Univ. Oxford	2 weeks
Langhanke, Gerald	Univ. Heidelberg	2 weeks
Markov, Maksim	Univ. Saint-Petersburg State	2 weeks
Rut, Grzegorz	Univ. Jagiellonian	2 weeks
RYPESTøL, Marianne	Univ. Oslo	2 weeks
SENGUN, Yasemin	Univ. Istanbul Technical	2 weeks
Serevicius, Tomas	Univ. Vilnius	2 weeks
Sharma, Girish	Univ. Gothenburg	2 weeks
Smits, Olaf	Dublin Inst. for Advanced Studies	2 weeks
Väyrynen, Jukka	Aalto Univ.	2 weeks

Table 16: Summary of visits in connection with the program on "The Return of de Sitter" (28 February – 18 March 2011)

Name	organization	duration
Dr. AKRAMI, Yashar	Univ. Heidelberg	4 weeks
Dr. BERG, Marcus	Univ. Karlstad	4 weeks
CAPASSO, Dario	City College of New York	2 weeks
Prof. HOFMANN, Stefan	LMU München	2 weeks
Dr. KIM, Alex	Lawrence Berkeley National Laboratory	2 weeks
KOPP, Michael	LMU Munich	2 weeks
Prof. Ménard, Brice	Johns Hopkins (Maryland) and CITA (Toronto)	3 weeks
MARCH, Marisa	Imperial College	3 weeks
Dr. MARSH, David C. M.	Oxford	3 weeks
Dr. MERLE, Alexander	Royal Inst. of Technology	4 weeks
Dr. ROSEN, Rachel	Univ. Columbia	4 weeks
Dr. SAHLéN, Martin	Univ. Oxford	4 weeks
SANTOS, Paulo	Inst. of Theoretical Astrophysics	2 weeks
Dr. SCHMIDT-MAY, Angnis	ETH Zürich	4 weeks
SCHNEIDER, Robert	LMU Munich	2 weeks
Dr. SKORDIS, Constantinos	Univ. Nottingham	2 weeks
Prof. SONG, Yong-Seon	KIAS	3 weeks
Dr. STRAUSS, Mikael	Inst. d'Astrophysique de Paris	4 weeks
Prof. WELLER, Jochen	Univ. Ludwig-Maximillians	2 weeks
Winther, Hans Arnold	Univ. Oslo	2 weeks

Table 17: Summary of visits in connection with the program on "Applications of network theory: from mechanisms to large-scale structure" (28 March – 20 April 2011)

Name	organization	duration
Dr. BAEK, Seung Ki	Icelab, Dept. Phys., Umeå Univ.	3 weeks
Dr. BENGTSSON, Linus	Karolinksa Inst.	5 weeks
Dr. BERNHARDSSON, Sebastian	Niels Bohr Inst.	2 weeks
CORREA ROCHA, Luis Enrique	Umeå Univ.	3 weeks
Dr. GROSS, Thilo	Max Planck Inst.	2 weeks
Dr. HOLME, Petter	Univ. Umeå	3 weeks
KARIMI, Fariba	Univ. Umeå	4 weeks
Dr. LAMBIOTTE, Renaud	FUNDP	2 weeks
LANCICHINETTI, Andrea	Inst. for Scientific Interchange	2 weeks
Dr. LEE, Sungmin	ICE Lab,Dept. Physics, Umeå Univ.	2 weeks
Dr. LEE, Sang Hoon	Icelab, Dept. Phys., Umeå Univ.	4 weeks
Dr. LILJEOS, Fredrik	Dep of Sociology Stockholm Univ.	5 weeks
Prof. MINNHAGEN, Petter	Umeå Univ.	2 weeks
MIRSHAHVALAD, Atieh	Umeå Univ.	2 weeks
OHST, Jan	Univ. Umeå	2 weeks
Prof. PARK, Juyong	Univ. Kyung Hee	2 weeks
ROSVALL, Martin	Univ. Umeå	2 weeks
Dr. SöDERBERG, Bo	Univ. Lund	3 weeks
Dr. SARAMäKI, Jari	Aalto Univ.	3 weeks
VIAMONTES ESQUIVEL, Alcides	Univ. Umeå	2 weeks
VILHENA, Daril	Univ. Washington	3 weeks
Dr. WEST, Jevin	Univ. Washington	3 weeks

Table 18: Summary of visits in connection with the program on "Predictability + School on Data Assimilation" (26 April – 27 May 2011)

Name	organization	duration
Dr. Caian, Mihaela	SMHI (Norrköping)	4 weeks
Dr. Chan, Chi-Kwan	Steward Observatory	4 weeks
Dr. Cuellar, Milena	Bronx Community College - CUNY	2 weeks
Mr. Di Bernardo, Giuseppe	Univ. Göteborg	4 weeks
Dr. Dobricic, Srdjan	Centro Euro-Medit. Climatici (Bologna)	3 weeks
Dr. Franzke, Christian	British Antarctic Survey (Cambridge)	3 weeks
Dr. Gustafsson, Nils	Swedish Met. Hydr. Inst. (Norrköping)	3 weeks
Dr. Körnich, Heiner	Dept Meteorology, Stockholm Univ.	5 weeks
Dr. KäPYLä, Petri	Univ. Helsinki	2 weeks
Prof. Kaneda, Yukio	Univ. Nagoya	3 weeks
Prof. Majumdar, Sharan	RSMAS Univ. Miami	4 weeks
Dr. Nilsson, Jenny	INGV Bologna	2 weeks
Prof. Nycander, Jonas	Dept Meteorology, Stockholm Univ.	4 weeks
Dr. Räisänen, Jouni	Department of Physics	3 weeks
Dr. Rougier, Jonathan	Univ. Bristol	5 weeks
Dr. Svedin, Andreas	Univ. Columbia	5 weeks
Dr. Talagrand, Olivier	Centre Natl Rech. Sci. (Paris)	2 weeks
Dr. Yang, Shuting	Danish Meteorological Inst.	2 weeks

Table 19: Summary of visits in connection with the program on "String Phenomenology" (30 May – 25 June 2011)

Name	organization	duration
Prof. Angelantonj, Carlo	Univ. Torino	3 weeks
Dr. Babalic, Elena Mirela	Natl Inst. Phys. Nucl. Eng. (Romania)	4 weeks
Dr. Berg, Marcus	Univ. Karlstad	4 weeks
Dr. Buchberger, Igor	Univ. Karlstad	4 weeks
Dr. D'Appollonio, Giuseppe	Univ. di Cagliari	2 weeks
Prof. Ferretti, Gabriele	Chalmers	4 weeks
Dr. Giangreco Puletti, Valentina	Univ. Iceland	4 weeks
Dr. Heidenreich, Ben	Univ. Cornell	3 weeks
Dr. Marotta, Raffaele	Univ. di Napoli	2 weeks
Dr. Marsh, David C. M.	Oxford Univ.	4 weeks
Prof. Nilles, Hans Peter	Physikalisches Inst. Bonn	2 weeks
Dr. Petersson, Christoffer	IFT, Madrid	3 weeks
Dr. Rosen, Rachel	Columbia Univ.	4 weeks
Prof. Schellekens, Bert	NIKHEF	2 weeks
Dr. Schmidt-May, Angnis	ETH Zürich	4 weeks
Prof. Shiu, Gary	Univ. of Wisconsin	2 weeks
Dr. Strauss, Mikael	Inst. d'Astrophysique de Paris	4 weeks
Prof. Tye, Henry	HKUST	2 weeks
Dr. Zingg, Tobias	ITF Utrecht	4 weeks

Table 20: Summary of visits in connection with the program on "Dynamo, Dynamical Systems and Topology" (25 July – 19 August 2011)

Name	organization	duration
Dr. Arlt, Rainer	Leibniz Inst. for Astrophysics Potsdam	2 weeks
Dr. Bobrick, Alexey	Univ. Lund	4 weeks
Dr. Bonanno, Alfio	INAF - INFN Catania	4 weeks
Prof. Busse, Friedrich	Univ. Bayreuth	4 weeks
Di Bernardo, Giuseppe	Univ. of Gothenburg	3 weeks
Prof. Dmitry, Sokoloff	Univ. Moscow State	4 weeks
Dr. He, Andong	Univ. ICERM Brown	4 weeks
Dr. Käpylä, Petri	Univ. Helsinki	4 weeks
Dr. Kitiashvili, Irina	NASA Ames Research Center	4 weeks
Prof. Kleeorin, Nathan	Univ. Ben-Gurion	4 weeks
Prof. Kosovichev, Alexander	Big Bear Solar Observatory	4 weeks
Dr. Kuzanyan, Kirill	IZMIRAN,Russia	3 weeks
Dr. Mansour, Nagi	NASA	3 weeks
Dr. Mantere, Maarit	Univ. Helsinki	3 weeks
Dr. Pipin, Valery	Inst. for solar-terrestrial physics	4 weeks
Prof. RäDLER, Karl-Heinz	Univ. Potsdam	4 weeks
Dr. Reshetnyak, Maxim	Inst. of Physics of Earth	4 weeks
Prof. Rheinhardt, Matthias	Univ. Helsinki	4 weeks
Prof. Rogachevskii, Igor	Univ. Ben-Gurion	4 weeks
Dr. Rubashnyy, Alexey	Univ. Moscow State	2 weeks
Dr. Simitev, Radostin	Univ. Glasgow	4 weeks
Mr. Snellman, Jan	Univ. Helsinki	4 weeks
Dr. Sur, Sharanya	Inst. for Theoretical Astrophysics	2 weeks
Dr. Wei, Xing	Astrophysical Inst. Potsdam	4 weeks
Dr. Yokoi, Nobumitsu	Univ. Tokyo	4 weeks

Table 21: Summary of visits in connection with the program on "Studying Quantum Mechanics in the Time Domain" (22 August – 16 September 2011)

Name	organization	duration
Dr. ARGENTI, Luca	Univ. Autnoma de Madrid	2 weeks
ASKELAND, Sigurd	Univ. Bergen	2 weeks
Dr. DAHLSTRöM, Marcus	Univ. Lund	2 weeks
Dr. EIGLSPERGER, Johannes	Univ. Technische	4 weeks
ETCHES, Adam	Univ. Aarhus	4 weeks
Dr. GENKIN, Michael	Max Planck Inst.	2 weeks
Prof. HANSEN, Jan Petter	Univ. Bergen	2 weeks
Dr. HARVEY, Alex	Max-Born Inst.	2 weeks
Dr. HELLGREN, Maria	Max Planck Inst. for Microstructure Physics	2 weeks
JENSEN BOESEN, Tue	Univ. Aarhus	4 weeks
Dr. KäSTNER, Alexander	MPI Physics Complex Systems (Dresden)	4 weeks
Dr. KRAMER, Tobias	Univ. Regensburg	4 weeks
Prof. LAMPROPOULOS, Peter	IESL-FORTH and Univ. of Crete	4 weeks
Dr. LANDSMAN, Alexandra	ETH Zurich	4 weeks
Prof. MAQUET, Alfred	Univ. Pierre and Marie Curie	2 weeks
Dr. MORALES MORENO, Felipe	Max-Born Inst.	2 weeks
Prof. RäSäNEN, Esa	Univ. Tampere	4 weeks
RICHTER, Maria	Max-Born Inst.	2 weeks
SøRNGåRD, Stian Astad	Univ. Bergen	2 weeks
Dr. Saalmann, Ulf	MPI Physics Complex Systems (Dresden)	3 weeks
Dr. SAENZ, Alejandro	Univ. Humboldt	2 weeks
Prof. SCRINZI, Armin	Univ. Ludwig Maximilian	2 weeks
Dr. SISOURAT, Nicolas	Univ. Pierre and Marie Curie	3 weeks
SPIEWANOWSKI, Maciek	Univ. Aarhus	4 weeks
Prof. TAYLOR, Ken	Queen's Univ. London	3 weeks
Prof. TOKESI, Karoly	Inst. for Nuclear Research	2 weeks

Table 22: Summary of visits in connection with the program on "Foundations and Applications of Non-Equilibrium Statistical Mechanics" (19 September – 14 October 2011)

Name	organization	duration
Prof. AMBJöRNSSON, Tobias	Univ. Lund	2 weeks
BO, Stefano	Univ. Torino	4 weeks
BOKSENBOJM, Eliran	Univ. Katholieke	2 weeks
DEAN, David	Univ. Paul Sabatier	2 weeks
Prof. DHAR, Abhishek	Raman Research Inst.	2 weeks
Prof. EVANS, Martin	Univ. Edinburgh	2 weeks
Prof. FOGEDBY, Hans	Niels Bohr Inst.	2 weeks
IMPARATO, Alberto	Univ. Aarhus	4 weeks
KARLEWSKI, Christian	Univ. Bielefeld	4 weeks
Prof. KAWAI, Ryoichi	Univ. Alabama at Birmingham	2 weeks
KUNDU, Anupam	International Centre for Theoretical Sciences	2 weeks
LACOSTE, David	ESPCI	4 weeks
Dr. MANYUHINA, Oksana	Univ. Syracuse	4 weeks
Prof. MEHLIG, Bernhard	Univ. Gothenburg	2 weeks
Prof. MEJIA-MONASTERIO, Carlos	Univ. Technical	4 weeks
NEMOTO, Takahiro	Univ. Tokyo	2 weeks
Prof. PELITI, Luca	National Inst. of Nuclear Physics	2 weeks
PUCCI, Lorenzo	Univ. di Napoli 'Federico II'	2 weeks
SAITO, Keiji	Univ. Tokyo	2 weeks
SASA, Shin-Ichi	Univ. Tokyo	2 weeks
SEKIMOTO, Ken	ESPCI	2 weeks
SPOHN, Herbert	Univ. Technische	2 weeks
Dr. STEFNSSON, Sigurur	Univ. Uppsala	4 weeks
SZAVITS-NOSSAN, Juraj	Inst. of Physics	2 weeks
Dr. VERLEY, Gatien	Univ. FSTC -	2 weeks
ZENG, Hongli	Aalto Univ.	2 weeks

Table 23: Summary of visits in connection with the program on "Geometry of Strings and Fields" (1 November – 3 December 2011)

Name	organization	duration
Dr. ABOU ZEID, Mohab	Univ. Leibniz	2 weeks
ALDI, Marco	Univ. Brandeis	2 weeks
Dr. BONECHI, Francesco	I.N.F.N.	4 weeks
Dr. BONEZZI, Roberto	Univ. INFN and	2 weeks
Dr. CARTAS, Viorel	Univ. Dunarea de Jos Galati	5 weeks
Dr. EKSTRAND, Joel	Univ. Uppsala	5 weeks
GöTEMAN, Malin	Univ. Uppsala	2 weeks
Prof. GRISARU, Marc	Univ. McGill	2 weeks
Dr. HELUANI, Reimundo	IMPA	3 weeks
Prof. HOWE, Paul	King's College	2 weeks
Prof. HULL, Chris	Imperial College London	3 weeks
Dr. KäLLéN, Johan	Univ. Geneva	5 weeks
Prof. KUZENKO, Sergei	Univ. Western Australia	2 weeks
Prof. LINDSTRöM, Ulf	Univ. Uppsala	5 weeks
Dr. MOROZOV, Alexei	ITEP	3 weeks
Dr. NOWLING, Sean	Jamestown Community College	4 weeks
PERUNICIC, Andrija	Univ. Brandeis	2 weeks
Dr. PESTUN, Vasily	IAS	2 weeks
Prof. POLYCHRONAKOS, Alexios	City College of NY	2 weeks
Dr. QIU, Jian	Univ. INFN Florence and Florence	4 weeks
Dr. TARTAGLINO-MAZZUCCHELLI, Gabriele	Univ. Uppsala	5 weeks
Prof. THORLACIUS, Lrus	Univ. Iceland	5 weeks
Prof. UNGE, Rikard	Univ. Masaryk	2 weeks
Prof. ZABZINE, Maxim	Univ. Uppsala	5 weeks
Dr. ZINGG, Tobias	ITF Utrecht	5 weeks

Table 24: Summary of visits in connection with the program on "Nordita Winter School 2012 on Theoretical Particle Physics" (9 January – 20 January 2012)

Name	organization	duration
(Sabanci) Keceli, Asli	Univ. Helsinki and HIP	2 weeks
Alanne, Tommi	Univ. Jyvskyl	2 weeks
Dr. Bissi, Agnese	Univ. Oxford	2 weeks
Buchberger, Igor	Univ. Karlstad	2 weeks
Channuie, Phongpichit	CP3-Origins and DIAS	2 weeks
Dr. Giangreco Puletti, Valentina	Univ. Iceland	2 weeks
Glaser, Lisa	Niels Bohr Inst.	2 weeks
Huang, Rijun	Niels Bohr Inst.	2 weeks
Kyriienko, Oleksandr	Univ. Iceland	2 weeks
Mølgaard, Esben	CP3-Origins	2 weeks
MARTIROSYAN, Ara	Niels Bohr Inst.	2 weeks
Mykkänen, Anne	Helsinki Inst. of Physics	2 weeks
NISSINEN, Jaakko	Univ. Oslo	2 weeks
POORMOHAMMADI, Mahdi	Univ. Bergen	2 weeks
Dr. SCHMIDT-MAY, Angnis	ETH Zürich	2 weeks
Dr. STRAUSS, Mikael	Inst. d'Astrophysique de Paris	2 weeks
SUORSA, Joni	Univ. Helsinki	2 weeks
TOCHIN, Alexey	Univ. Bergen	2 weeks
Dr. VOLIN, Dmytro	Trinity College Dublin	2 weeks
WALLIN SONESSON, Leo	Univ. Lund	2 weeks
Dr. ZINGG, Tobias	ITF Utrecht	2 weeks

Table 25: Summary of visits in connection with the program on "Exact Results in Gauge-String Dualities" (23 January – 17 February 2012)

Name	organization	duration
Prof. AHN, Changrim	Univ. Inst. for Early Univ. Womans	3 weeks
Dr. ALEXANDROV, Sergei	Univ. Montpellier 2	2 weeks
Dr. ALFIMOV, Mikhail	P.N. Lebedev Physical Inst.	4 weeks
Dr. AMIT, Sever	IAS and Perimeter Inst.	2 weeks
Prof. BAJNOK, Zoltn	Theoretical Physics Research Group of HAS	2 weeks
Dr. BARGHEER, Till	Inst. for Advanced Study, Princeton	4 weeks
Dr. BELAVIN, Vladimir	FIAN	3 weeks
Dr. DE LEEUW, Marius	ETH	3 weeks
Prof. DRUKKER, Nadav	King's College London	2 weeks
Dr. Ferro, Livia	Univ. Humboldt	3 weeks
Prof. FIORAVANTI, Davide	Univ. INFN-Bologna and	2 weeks
Dr. FREYHULT, Lisa	Univ. Uppsala	4 weeks
Prof. GRIGNANI, Gianluca	Univ. Perugia	2 weeks
Dr. HARMARK, Troels	NBI	4 weeks
Dr. HEINZE, Martin	Desy	2 weeks
Dr. HOARE, Ben	Univ. Humboldt	3 weeks
Dr. KLOSE, Thomas	Univ. Uppsala	3 weeks
Dr. KOSTOV, Ivan	IPhT,CEA-Saclay	2 weeks
Prof. KRISTJANSEN, Charlotte	Niels Bohr Inst.	3 weeks
Dr. LEURENT, Sbastien	ENS	2 weeks
Dr. LUKOWSKI, Tomasz	Univ. Humboldt	4 weeks
Dr. MCLOUGHLIN, Tristan	Albert Einstein Inst.	3 weeks
Prof. MINAHAN, Joseph	Univ. Uppsala	2 weeks
Prof. NEPOMECHIE, Rafael	Univ. Miami	3 weeks
Dr. ORSELLI, Marta	Univ. Perugia	2 weeks
Dr. PASSERINI, Filippo	Univ. Humboldt	3 weeks
Dr. SERBAN, Didina	IPhT,CEA-Saclay	2 weeks
Prof. SOROKIN, Dmitri	INFN Padua	2 weeks
Dr. VOLIN, Dmytro	Trinity College Dublin	4 weeks
Dr. ZIEME, Stefan	Humboldt-Univ. Berlin	4 weeks
Dr. ZINGG, Tobias	ITF Utrecht	4 weeks
Dr. ZOUBOS, Konstantinos	Niels Bohr Inst.	3 weeks

Table 26: Summary of visits in connection with the program on "Dynamics of Biomolecular Processes: From Atomistic Representations to Coarse-Grained Models" (27 February – 23 March 2012)

Name	organization	duration
Dr. André, Ingemar	Univ. Lund	2 weeks
Dr. Baranowski, Maciej	Univ. Univ. Gdansk and Medical	4 weeks
Prof. Behringer, Hans	Univ. Mainz	5 weeks
Dr. Bhattacherjee, Arnab	Univ. Lund	3 weeks
Dr. Esguerra, Mauricio	Karolinska Inst.	4 weeks
Prof. Freed, Karl	Univ. Chicago	2 weeks
Dr. Globisch, Christoph	Max Planck Inst.	2 weeks
Dr. Golas, Ewa	Univ. Gdansk	2 weeks
Prof. Irbäck, Anders	Univ. Lund	2 weeks
Dr. Krokhotin, Andrey	Univ. Uppsala	4 weeks
Dr. Krupa, Pawe	Univ. Gdansk	2 weeks
Dr. Monticelli, Luca	INSERM	2 weeks
Dr. Mozolewska, Magdalena	Univ. Gdansk	2 weeks
Dr. Ramanathan, Ravishankar	Cent. Investig. Biologicas, CSIC	3 weeks
Dr. Subramaniam, sangeetha	Int. Ctr Genetic Eng. Biotech.	3 weeks
Dr. Villa, Alessandra	Karolinska Inst.	4 weeks
Dr. Wallin, Stefan	Univ. Lund	3 weeks

Table 27: Summary of visits in connection with the program on "Biology and Physics of Information Processing" (16 April – 11 May 2012)

Name	organization	duration
Dr. BATTISTIN, Claudia	NTNU - Kavli Inst. of Systems Neuroscience	2 weeks
Dr. BRUSBERG, Göran	SOLAC	2 weeks
Dr. DUNN, Benjamin	Kavli Inst. for Systems Neuroscience	4 weeks
Dr. KRIENER, Birgit	Univ. Norwegian	2 weeks
Dr. MAHMOUDI, Hamed	Univ. Aston	2 weeks
Dr. NOURMOHAMMAD, Armita	Univ. Cologne	2 weeks
Dr. RICHMOND, Barry	US National Inst. of Mental Health	2 weeks
Prof. ROLAND, Per	Univ. Copenhagen	4 weeks
Prof. ROUDI, Yasser	Kavli Inst. - NTNU	4 weeks
Prof. SOLLA, Sara	Univ. Northwestern	4 weeks
Dr. STELLA, Federico	SISSA,Cognitive Neuroscience Sector	4 weeks
Dr. TANASE NICOLA, Sorin	Univ. Uppsala	4 weeks
Dr. VESTERGAARD, Mikkel	Univ. Copenhagen	2 weeks
Dr. VIVO, Pierpaolo	LPTMS - CNRS	2 weeks
Dr. WITOELAR, Aree	NTNU,Kavli Inst. for Systems Neuroscience	2 weeks

Table 28: Summary of visits in connection with the program on "Origin of Mass 2012" (28 May – 22 June 2012)

Name	organization	duration
Dr. ANTIPIN, Oleg	Univ. Southern Denmark	2 weeks
Dr. BOMARK, Nils-Erik	Univ. Bergen	3 weeks
Dr. BURSA, Francis	Univ. Swansea	2 weeks
Dr. DI CHIARA, Stefano	Univ. Southern Denmark	2 weeks
Dr. EICHTEN, Estia	Fermilab	2 weeks
Dr. FOADI, Roshan	UCL	2 weeks
Dr. FRANDSEN, Mads Toudal	CP3-Origins	2 weeks
Dr. HILL, Christopher	Fermilab	2 weeks
Dr. JARVINEN, Matti	Univ. Crete	2 weeks
Dr. KOUVARIS, Chris	Univ. Southern Denmark	2 weeks
Dr. NARDECCHIA, Marco	Univ. Southern Denmark	2 weeks
Dr. PANCI, Paolo	Univ. Southern Denmark	2 weeks
Dr. PATELLA, Agostino	CERN	2 weeks
Dr. PICA, Claudio	Univ. Southern Denmark	3 weeks
Dr. RAGO, Antonio	Univ. Wuppertal	2 weeks
Dr. RYTTOV, Thomas	Univ. Harvard	2 weeks
Dr. SAKUMA, Hidenori	Univ. Jyvaskyla	2 weeks
Prof. SANNINO, Francesco	CP3-Oirigins and DIAS	3 weeks
Dr. SCHECHTER, Joseph	Univ. Syracuse	2 weeks
Prof. THORLACIUS, Lrus	Univ. Iceland	3 weeks
Prof. TUOMINEN, Kimmo	Univ. Jyvskyl	3 weeks
Dr. WIJEWARDHANA, L. C. Rohana	Univ. Cincinnati	4 weeks
Dr. ZINGG, Tobias	ITF Utrecht	4 weeks

Table 29: Summary of visits in connection with the program on "Topological States of Matter: Insulators, Superconductors, and Quantum Hall Liquids" (30 July – 25 August 2012)

Name	organization	duration
Prof. öSTLUND, Stellan	Univ. Gothenburg	2 weeks
Dr. BENOIT, Estienne	Univ. Princeton	2 weeks
Dr. BJöRNSON, Kristofer	Univ. Uppsala	4 weeks
Prof. BLACK-SCHAFFER, Annica	Univ. Uppsala	4 weeks
Dr. BUDICH, Jan Carl	Univ. Innsbruck	2 weeks
Dr. BURNELL, Fiona	Univ. Oxford	3 weeks
Dr. CAPPELLI, Andrea	INFN	3 weeks
Dr. DAVENPORT, Simon	Univ. Oxford	3 weeks
Dr. DUBAIL, Jerome	Yale Univ.	2 weeks
Dr. FREMLING, Mikael	Stockholm Uiversity	4 weeks
Dr. GROSFELD, Eytan	Univ. Ben Gurion	2 weeks
Prof. GRUZBERG, Ilya	Univ. Chicago	2 weeks
Dr. HERMANNS, Maria	Univ. Cologne	4 weeks
Dr. HORMOZI, Layla	NIST	4 weeks
Dr. HORSDAL, Mats	Univ. Leipzig	4 weeks
Dr. HYART, Timo	Univ. Leipzig	4 weeks
Dr. KEYSERLINGK, Curt	Oxford Univ.	3 weeks
Dr. LAHTINEN, Ville	Univ. Amsterdam	4 weeks
Dr. MöLLER, Gunnar	Univ. Cambridge	2 weeks
Prof. MELE, Eugene	Univ. Pennsylvania	2 weeks
Dr. MOTRUNICH, Olexei	California Inst. of Technology	2 weeks
Prof. OSHIKAWA, Masaki	Univ. Tokyo	3 weeks
Prof. QI, Xiaoliang	Univ. Stanford	2 weeks
READ, Nick	Yale Univ.	2 weeks
RYPESTøL, Marianne	Univ. Oslo	2 weeks
SA, Baisheng	Univ. Uppsala	4 weeks
Dr. SCHNYDER, Andreas	Max Planck Inst.	3 weeks
Prof. SEIDEL, Alexander	Univ. Washington	2 weeks
Prof. SIMON, Steven	Univ. Oxford	2 weeks
Dr. SLINGERLAND, Joost	Univ. National	3 weeks
VERNIER, Eric	ENS Paris / IPhT,CEA Saclay	4 weeks
Prof. VIEFERS, Susanne	Univ. Oslo	2 weeks
WALTER, Stefan	Univ. Würzburg	2 weeks
Prof. YANG, Kun	Univ. Florida State	2 weeks
Dr. ZINGG, Tobias	ITF Utrecht	4 weeks

Table 30: Summary of visits in connection with the program on "Spin-Related Phenomena in Mesoscopic Transport" (3 September – 28 September 2012)

Name	organization	duration
Dr. Baltanas, Jose Pablo	Univ. de Sevilla	2 weeks
Prof. Berggren, Karl-Fredrik	Univ. Linköping	4 weeks
Prof. Black-Schaffer, Annica	Univ. Uppsala	4 weeks
Prof. Eriksson, Olle	Univ. Uppsala	4 weeks
Dr. Espinosa-Ortega, Tania	Univ. Nanyang Technological	2 weeks
Prof. Ferreira Da Silva, Antonio	Univ. Inst. de Fsica -	3 weeks
Prof. Frustaglia, Diego	Univ. de Sevilla	2 weeks
Dr. Glazov, Mikhail	Ioffe Physical-Technical Inst.	2 weeks
Dr. Kovalev, Vadim	Inst. of Semiconductor Physics	4 weeks
Dr. Kyriienko, Oleksandr	Univ. Iceland	4 weeks
Dr. Liew, Timothy	Univ. Nanyang Technological	2 weeks
Dr. Lopez-Rosa, Sheila	Univ. Sevilla	2 weeks
Dr. Matveev, Konstantin	Argonne National Laboratory	2 weeks
Dr. Osman, Mostafa	UCL, London Centre of Nanotechnology	2 weeks
Prof. Sadreev, Almas	Inst. of Physics of Russian Academy of Sciences	3 weeks
Dr. Soori, Abhiram	Indian Inst. of Science	2 weeks

Table 31: Summary of visits in connection with the program on "The Holographic Way: String Theory, Gauge Theory and Black Holes" (1 October – 26 October 2012)

Name	organization	duration
Dr. Armas, Jay	Univ. Bern	2 weeks
Dr. Bargheer, Till	Inst. for Advanced Study, Princeton	2 weeks
Dr. Bykov, Dmitri	Max Planck Inst.	4 weeks
Dr. Camps, Joan	Univ. Cambridge	2 weeks
Prof. Emparan, Roberto	Univ. Barcelona	2 weeks
Dr. Giangreco Puletti, Valentina	Univ. Iceland	2 weeks
Dr. Goutéraux, Blaise	Stanford	4 weeks
Dr. Hartong, Jelle	Niels Bohr Inst.	2 weeks
Dr. Heller, Micha	Univ. van Amsterdam	2 weeks
Prof. Hull, Chris	Imperial College London	3 weeks
Dr. Klose, Thomas	Univ. Uppsala	4 weeks
Prof. Lindström, Ulf	Univ. Uppsala	4 weeks
Prof. McInnes, Brett	Univ. National	4 weeks
Prof. Nilsson, Bengt E.W.	Univ. Chalmers	2 weeks
Prof. Thorlacius, Lárus	Univ. Iceland	2 weeks
Dr. Young, Donovan	Univ. London	4 weeks

Table 32: Summary of visits in connection with the program on "Perspectives of Fundamental Cosmology" (5 November – 30 November 2012)

Name	organization	duration
Prof. BOJOWALD, Martin	Univ. Penn State	4 weeks
Dr. CAMPIGLIA, Miguel	Univ. Penn State	4 weeks
Dr. CHATWIN-DAVIES, Aidan	Univ. Waterloo	2 weeks
Dr. DAPOR, Andrea	Inst. Fizyki Teoretycznej	2 weeks
Dr. GUTS, Sergey	Moscow Inst. of Physics and Technology	3 weeks
Dr. KHODAGHOLIZADEH, Jafar	Univ. Farhangian	3 weeks
Dr. KUBALOVA, Emilia	Univ. Masaryk	4 weeks
Dr. Linsefors, Linda	Lab. Phys. Subatomique Cosm. Grenoble	2 weeks
Dr. PACHOL, Anna	Science Inst.	2 weeks
Prof. SAKELLARIADOU, Mairi	King's College London	4 weeks
Prof. SZYDLOWSKI, Marek	Univ. Jagiellonian	2 weeks
Dr. TASLIMITEHRANI, Mojtaba	Univ. Hamburg	4 weeks
Dr. ZONETTI, Simone	Univ. Catholique de Louvain	2 weeks

Table 33: Summary of visits in connection with the program on "Nordita Winter School 2013 in High-Energy Astrophysics" (7 January – 18 January 2013)

Name	organization	duration
BOBRICK, Alexey	Univ. Lund	2 weeks
EBRAHIMI, Aghileh	Univ. Shahid Beheshti Univ. and Kashan	2 weeks
ELASSON, Ott	Univ. Iceland	2 weeks
JERMAK, Helen	Univ. Liverpool John Moores	2 weeks
KüFFMEIER, Michael	Univ. Copenhagen	2 weeks
KIPPER, Rain	Tartu Observatory	2 weeks
KOBYAKOV, Dmitry	Umeå Unversity	2 weeks
KUUTMA, Teet	Tartu Observatory	2 weeks
MUSHTUKOV, Alexander	Univ. Oulu	2 weeks
SUNDELL, Peter	Univ. Turku	2 weeks
Dr. TSYGANKOV, Sergey	Finnish Centre for Astronomy with ESO	2 weeks
Dr. WARNECKE, Jörn	Max Planck Inst.	2 weeks
XAVIER, Carlton	Univ. Turku	2 weeks

Table 34: Summary of visits in connection with the program on "Pushing the Boundaries with Cold Atoms" (21 January – 15 February 2013)

Name	organization	duration
Dr. ANDERSON, Brandon	Joint Quantum Inst.	2 weeks
Balasubramanian, P. V.	Univ. McMaster	2 weeks
Dr. BUDICH, Jan Carl	Univ. Innsbruck	4 weeks
DI LIBERTO, Marco	Univ. Utrecht	2 weeks
Prof. DUKELSKY, Jorge	Inst. de Estructura de la Materia	2 weeks
Dr. ECKARDT, Andr	Max Planck Inst. Dresden	2 weeks
ERIKSSON, Gunnar	Univ. Lund	4 weeks
Prof. FISCHER, Uwe R.	Univ. Seoul National	2 weeks
FREMLING, Mikael	Stockholm Uiversity	4 weeks
JASON, Peter	Univ. Linköping	4 weeks
Prof. JUZELIUNAS, Gediminas	Univ. Vilnius	2 weeks
Dr. KARABULUT, Elife	Univ. Lund	2 weeks
Dr. LEVINSEN, Jesper	Univ. Cambridge	2 weeks
Dr. LOBO, Carlos	Univ. Southampton	2 weeks
Dr. MASSIGNAN, Pietro	ICFO - Inst. of Photonic Sciences	2 weeks
Dr. MAZZARELLA, Giovanni	Dipt. "G. Galilei" (Padova)	2 weeks
Dr. PARISH, Meera	UCL	2 weeks
Dr. POWELL, Stephen	Univ. Nottingham	4 weeks
Prof. REIMANN, Stephanie M	Univ. Lund	4 weeks
Dr. SZIRMAI, Gergely	Wigner Res. Centre Hungarian Acad. Sci.	2 weeks
Prof. TöRMä, Pivi	Aalto Univ.	4 weeks
Dr. WATANABE, Gentaro	APCTP	2 weeks
Dr. WONG, Clement	Univ. Utrecht	2 weeks
Dr. YOON, Sukjin	Asia Pacific Center for Theor. Phys.	2 weeks

Table 35: Summary of visits in connection with the program on "Stochastic Thermodynamics" (4 March – 15 March 2013)

Name	organization	duration
Prof. COHEN, E.G.D.	Univ. Rockefeller	2 weeks
Dr. ESPOSITO, Massimiliano	Univ. Luxembourg	2 weeks
Prof. KAWAI, Ryoichi	Univ. Alabama at Birmingham	2 weeks
LACOSTE, David	ESPCI	2 weeks
NAKAYAMA, Yohei	Univ. Tokyo	2 weeks
NEMOTO, Takahiro	Univ. Kyoto	2 weeks
PAL, Arnab	Raman Research Inst.	2 weeks

Table 36: Summary of visits in connection with the program on "Differential Rotation and Magnetism across the HR Diagram" (8 April – 3 May 2013)

Name	organization	duration
Dr. Amard, Louis	Univ. Montpellier	2 weeks
Dr. ARLT, Rainer	Leibniz Inst. for Astrophysics Potsdam	4 weeks
Dr. BORISOVA, Ana	Inst. of Astronomy and NAO-Rozhen	3 weeks
Dr. BRAITHWAITE, Jon	Univ. Bonn	3 weeks
Dr. BROWNING, Matthew	Univ. Exeter	3 weeks
Prof. BUSSE, Friedrich	Univ. Bayreuth	2 weeks
Dr. CANTIELLO, Matteo	Kavli Inst. for Theor. Phys.	4 weeks
Ms. Cole, Elizabeth	Univ. Helsinki	3 weeks
Dr. DEVLEN, Ebru	Univ. Ege	4 weeks
Prof. GAILITIS, Agris	Univ. Latvia	2 weeks
Hypolite, Delphine	Inst. de Recherche en Astrophysique et Plantologie	2 weeks
Dr. Käpylä, Petri	Univ. Helsinki	4 weeks
Dr. Küker, Manfred	Leibniz-Inst. für Astrophysik Potsdam	4 weeks
Dr. Karoff, Christoffer	Univ. Aarhus	2 weeks
Prof. Kholtygin, Alexander	Univ. Astronomical Inst.	2 weeks
Dr. Kitchatinov, Leonid	Inst. for Solar-Terrestrial Physics	2 weeks
Dr. Kochukhov, Oleg	Univ. Uppsala	4 weeks
Dr. Kriskovics, Levente	Konkoly Observatory of HAS	2 weeks
Dr. Kuzanyan, Kirill	IZMIRAN,Russia	2 weeks
Mr. Lehtinen, Jyri	Univ. Helsinki	2 weeks
Dr. Lund, Mikkel	Univ. Aarhus	2 weeks
Dr. Miesch, Mark	High Altitude Observatory	2 weeks
Dr. Petitdemange, Ludovic	LRA-ENS Ecole Normale Suprieure	2 weeks
Prof. Pinzon, Giovanni	Univ. Nacional de Colombia	4 weeks
Prof. Rädler, Karl-Heinz	Univ. Potsdam	4 weeks
Prof. Rogachevskii, Igor	Univ. Ben-Gurion	4 weeks
Dr. Schrinner, Martin	Ecole Normale Suprieure	2 weeks
Mr. Snellman, Jan	Univ. Helsinki	4 weeks
Prof. Subramanian, K.	IUCAA, Pune (India)	2 weeks
Dr. Tian, Chunlin	Univ. Helsinki	4 weeks
Dr. Triana, Santiago	KU Leuven	2 weeks
Dr. Yadav, Rakesh	Max Planck Inst.	2 weeks
Dr. Yokoi, Nobumitsu	Univ. Tokyo	4 weeks
Dr. Zhang, Liyun	Univ. Oulu	2 weeks
Dr. Zolotova, Nadezhda	Univ. St. Petersburg State	2 weeks

Table 37: Summary of visits in connection with the program on "Stability and Transition" (6 May – 31 May 2013)

Name	organization	duration
Prof. COSSU, Carlo	CNRS - Inst. Mecanique Fluides Toulouse	2 weeks
Prof. CVITANOVIC, Predrag	Georgia Inst. of Technology	4 weeks
DE TULLIO, Nicola	Univ. Southampton	3 weeks
Dr. DUGUET, Yohann	LIMSI-CNRS	4 weeks
Prof. GOVINDARAJAN, Rama	Jawaharlal Nehru Centre Adv. Sci. Res.	3 weeks
Dr. HEIN, Stefan	DLR	3 weeks
JOSE, Sharath	TIFR Centre for Interdisciplinary Sciences	3 weeks
JOTKAR, Mamta	TIFR,Centre for Interdisciplinary	4 weeks
Dr. JUNIPER, Matthew	Univ. Cambridge	3 weeks
Prof. KERSWELL, Rich	Univ. Bristol	2 weeks
Dr. KLOKER, Markus J.	Univ. Stuttgart	2 weeks
KREILOS, Tobias	Univ. Philipps	3 weeks
Prof. NAGATA, Masato	Univ. Kyoto	4 weeks
Dr. PRALITS, Jan	Univ. Genoa	3 weeks
Prof. RIST, Ulrich	Univ. Stuttgart	3 weeks
Prof. SøRENSEN, Jens Nrkr	Univ. Technical	2 weeks
SCHMIDT, Oliver	Univ. Stuttgart	4 weeks
Dr. SURYADI, Alexandre	Linné FLOW Centre	4 weeks
Dr. TAMMISOLA, Outi	Univ. Cambridge	2 weeks

Table 38: Summary of visits in connection with the program on "Photo-Evaporation in Astrophysical Systems" (3 June – 28 June 2013)

Name	organization	duration
Dr. Arthur, Jane	CRyA-UNAM (Mexico)	2 weeks
Dr. Baczynski, Christian	Univ. Heidelberg	3 weeks
Dr. Bisbas, Thomas	Univ. College London	4 weeks
Dr. Dale, James	Excellence Cluster	2 weeks
Dr. Esquivel, Alejandro	ICN-UNAM (Mexico)	4 weeks
Dr. Facchini, Stefano	Univ. Cambridge	2 weeks
Dr. Gritschneder, Matthias	Univ. California Santa Cruz	3 weeks
Dr. Haworth, Thomas	Univ. Exeter	4 weeks
Dr. Henney, William	CRyA-UNAM (Mexico)	2 weeks
Dr. Ibañez Mejia, Juan Camilo	American Museum of Natural History	2 weeks
Prof. Mac Low, Mordecai-Mark	American Museum of Natural History	2 weeks
Dr. Mackey, Jonathan	Argelander-Inst. for Astronomy	3 weeks
Dr. Owen, James	CITA	2 weeks
Dr. Raga, Alejandro	ICN-UNAM (Mexico)	2 weeks
Dr. Ramsey, Jon	Univ. Heidelberg	2 weeks
Dr. Rosotti, Giovanni	MPE	2 weeks
Prof. Shapiro, Paul	Univ. Texas at Austin	2 weeks
Dr. Velazquez, Pablo	Inst. de Ciencias Nucleares	2 weeks

Table 39: Summary of visits in connection with the program on "Beyond the LHC" (1 July – 27 July 2013)

Name	organization	duration
Dr. Ahmed, Aqeel	Univ. Warsaw	3 weeks
Dr. Barr, Alan	Univ. Oxford	3 weeks
Dr. Bomark, Nils-Erik	Univ. Bergen	4 weeks
Prof. Branco, Gustavo C.	Inst. Superior Tecnico	3 weeks
DAL, Lars Andreas	Univ. Oslo	2 weeks
Dr. Grabovsky, andrey	Budker INP	4 weeks
Dr. Gripaios, Ben	Cavendish Laboratory	2 weeks
Prof. Grzadkowski, Bohdan	Univ. Warsaw	3 weeks
Dr. Haarr, Anders	Univ. Stavanger	2 weeks
Dr. Kalinowski, Jan	Univ. Warsaw	2 weeks
Prof. Krawczyk, Maria	Univ. Warsaw	2 weeks
Dr. Miller, David	Univ. Glasgow	3 weeks
Prof. Osland, Per	Univ. Bergen	4 weeks
Dr. Pasechnik, Roman	Univ. Lund	4 weeks
Dr. Raklev, Are	Univ. Oslo	4 weeks
Prof. Rathsman, Johan	Univ. Lund	2 weeks
Dr. Rebelo, Margarida Nesbitt	Univ. Lisbon	4 weeks
Dr. Scott, Pat	Imperial College London	4 weeks
Dr. Stefaniak, Tim	Univ. Bonn	2 weeks

Table 40: Summary of visits in connection with the program on "Superconductivity: the Second Century" (5 August – 30 August 2013)

Name	organization	duration
Dr. Ahn, Felix	Ruhr-University	3 weeks
Prof. BANG, Yunkyu	APCTP	3 weeks
Prof. BAO, Wei	Univ. Renmin	2 weeks
BJöRNSON, Kristofer	Univ. Uppsala	4 weeks
Prof. BLACK-SCHAFFER, Annica	Univ. Uppsala	4 weeks
FANFARILLO, Laura	Inst. de Ciencia de Materiales de Madrid	3 weeks
Dr. HELLSVIK, Johan	Univ. Sapienza	3 weeks
Prof. KUROKI, Kazuhiko	Univ. Osaka	2 weeks
Prof. MILLIS, Andrew	Univ. Columbia	2 weeks
Dr. Mizoguchi, Tomonari	Univ. Tokyo	2 weeks
Dr. Mohanta, Narayan	Indian Inst. of Technology Kharagpur	3 weeks
Prof. NUSSINOV, Zohar	Univ. Washington	4 weeks
Prof. ORTIZ, Gerardo	Univ. Indiana	2 weeks
Dr. POWELL, Stephen	Univ. Nottingham	4 weeks
Prof. SPALDIN, Nicola	Materials Theory,ETH Zürich	2 weeks
Prof. TAJIMA, Setsuko	Univ. Osaka	2 weeks
Prof. VAFEK, Oskar	National High Magnetic Field Lab	2 weeks
Prof. WANG, Nan-Lin	Inst. of Physics	2 weeks
Dr. WU, Kai	Univ. Leiden	2 weeks
Prof. YIP, Sungkit	Inst. of Physics	2 weeks
Prof. ZHENG, Guo-Qing	Univ. Okayama	2 weeks

Table 41: Summary of visits in connection with the program on "Lyman Alpha as an Astrophysical Tool" (2 September – 27 September 2013)

Name	organization	duration
Prof. öSTLIN, Göran	Stockholm Univ.	4 weeks
CANTALUPO, Sebastiano	UCSC	2 weeks
COWIE, Len	Univ. Hawaii	2 weeks
Dr. GRONWALL, Caryl	Univ. Penn State	2 weeks
HAGEN, Alex	Univ. Penn State	2 weeks
HASHIMOTO, Takuya	Univ. Tokyo	4 weeks
Dr. HAYES, Matthew	Stockholm Observatory	4 weeks
Dr. HENRY, Alaina	NASA Goddard Space Flight Center	4 weeks
HU, Ester	Univ. Hawaii	2 weeks
Dr. MOMOSE, Rieko	Univ. Tokyo	4 weeks
NAKAJIMA, Kimihiko	Univ. Tokyo	2 weeks
Dr. PRESCOTT, Moire	Dark Cosmology Centre	3 weeks
Dr. RAUCH, Michael	Carnegie Observatories	2 weeks
SADOUN, Raphael	Univ. Utah	2 weeks
Dr. SCARLATA, Claudia	Univ. Minnesota	3 weeks
TRAINOR, Ryan	Caltech	2 weeks
Dr. VERHAMME, Anne	Univ. de Genve	2 weeks

Table 42: Summary of visits in connection with the program on "Nordita Winter School 2014 on Condensed Matter Physics" (6 January – 17 January 2014)

Name	organization	duration
Dr. Andrzejewski, Micha	Univ. Adam Mickiewicz	2 weeks
Dr. Arjoranta, Juho	Aalto Univ.	2 weeks
Dr. Barros Neves De Araujo, Rafael	Univ. Uppsala	2 weeks
Dr. Borlenghi, Simone	Univ. Uppsala	2 weeks
Dr. Feng, Qingguo	Univ. Linköping	2 weeks
Dr. Fidrysiak, Maciej	Univ. Wrocaw	2 weeks
Dr. Fremling, Mikael	Stockholm Uiversity	2 weeks
Dr. Galteland, Peder Notto	Univ. Norwegian	2 weeks
Dr. Karpov, Denis	Univ. Eastern Finland	2 weeks
Dr. Kobyakov, Dmitry	Umeå Unversity	2 weeks
Dr. Koumpouras, Konstantinos	Univ. Uppsala	2 weeks
Dr. Ladegård Meyer, Marius	Univ. Oslo	2 weeks
Dr. Liabøtrø, Ola	Univ. Oslo	2 weeks
Dr. Marchukov, Oleksandr	Univ. Aarhus	2 weeks
Dr. Mei, Peng	Inst. of Biotechnology	2 weeks
Dr. Mihailova, Irena	Univ. Daugavpils	2 weeks
Dr. Moreau, Magnus	Univ. Norwegian	2 weeks
Dr. Odriazola, Alexander	Univ. Tampere	2 weeks
Dr. Röntynen, Joel	Aalto Univ.	2 weeks
Dr. Rex, Stefan	Univ. Norwegian	2 weeks
Dr. Sarajevs, Pavels	Univ. Daugavpils	2 weeks
Prof. Spaldin, Nicola	Materials Theory,ETH Zürich	2 weeks

Table 43: Summary of visits in connection with the program on "News in Neutrino Physics" (7 April – 2 May 2014)

Name	organization	duration
Dr. ARISTIZABAL, Diego	Univ. de Lige	2 weeks
Dr. CHOUBEY, Sandhya	Harish-Chandra Research Inst.	2 weeks
Dr. COLOMA, Pilar	Virginia Tech	3 weeks
Dr. DI BARI, Pasquale	Univ. Southampton	4 weeks
Dr. ENBERG, Rikard	Univ. Uppsala	4 weeks
Dr. FARZAN, Yasaman	IPM	4 weeks
Dr. HAGEDORN, Claudia	Univ. Technische	2 weeks
HERRERO GARCIA, Juan	IFIC-UV,CSIC	4 weeks
Prof. KACHELRIESS, Michael	Univ. Norwegian	2 weeks
Prof. MINAKATA, Hisakazu	Univ. Pontifcia	4 weeks
Dr. MOLINARO, Emiliano	CP3	2 weeks
Dr. PALOMARES-RUIZ, Sergio	IFIC	2 weeks
Prof. PARKE, Stephen	Fermilab	2 weeks
Prof. RENO, Hallsie	Univ. Iowa	2 weeks
Dr. SCHWETZ, Thomas	Max Planck Inst.	4 weeks
Prof. SINHA, Nita	Inst. of Mathematical Sciences	4 weeks
WEILER, Thomas	Univ. Vanderbilt	2 weeks
Prof. XING, Zhi-Zhong	Inst. of High Energy Physics	2 weeks
Dr. ZHANG, He	Max Planck Inst.	2 weeks

Table 44: Summary of visits in connection with the program on "What is the Dark Matter?" (5 May – 30 May 2014)

Name	organization	duration
Ms. Andreas, Sarah	Inst. Astrophysique de Paris	2 weeks
Dr. Boehm, Celine	Univ. Durham	3 weeks
Dr. Bozorgnia, Nassim	Max Planck Inst.	4 weeks
Dr. Cornell, Jonathan	Univ. California	2 weeks
Dr. Esmaili Taklimi, Arman	Gran Sasso National Laboratory	2 weeks
Dr. Fairbairn, Malcolm	King's College London	2 weeks
Prof. Gondolo, Paolo	Univ. Utah	4 weeks
Dr. Green, Anne	Univ. Nottingham	2 weeks
Dr. Gustafsson, Michael	Univ. libre de Bruxelles	3 weeks
Dr. HARZ, Julia	Univ. College London	2 weeks
Kelso, Chris	Univ. Utah	2 weeks
Lacroix, Thomas	Inst. d'Astrophysique de Paris	4 weeks
Dr. Mccabe, Christopher	Univ. Durham	2 weeks
Prof. Mohanty, Subhendra	Physical Research Laboratory	4 weeks
Dr. Pasechnik, Roman	Univ. Lund	2 weeks
Sandick, Pearl	Univ. Utah	2 weeks
Dr. Sokoowska, Dorota	Univ. Warsaw	4 weeks
Strigari, Louis	Univ. Indiana	2 weeks
Dr. Weniger, Christoph	Univ. Amsterdam	2 weeks
Wild, Sebastian	Univ. Technical	2 weeks

Table 45: Summary of visits in connection with the program on "Dynamics of Particles in Flows: Fundamentals and Applications" (2 June – 27 June 2014)

Name	organization	duration
Dr. ABEL, Markus	Ambrosys GmbH	2 weeks
Dr. BEC, Jeremie	Observatoire de la Cote d'Azur	2 weeks
Prof. BIFERALE, Luca	Univ. Rome	2 weeks
Dr. BUSSE, Angela	Univ. Glasgow	2 weeks
CHALLABOTLA, Niranjan Reddy	Univ. Norwegian	3 weeks
GRANT, John	Univ. Open	2 weeks
Dr. HAUGEN, Nils Erland L.	SINTEF Energy Research	2 weeks
Dr. JIN, Guodong	Inst. of Mechanics	2 weeks
Prof. KLEEORIN, Nathan	Univ. Ben-Gurion	2 weeks
Prof. LIBERMAN, Michael	Univ. Uppsala	3 weeks
Dr. MARCHIOLI, Cristian	Univ. Udine	2 weeks
Prof. MEHLIG, Bernhard	Univ. Gothenburg	2 weeks
Dr. MUSACCHIO, Stefano	Univ. Nice	2 weeks
Dr. PAN, Liubin	Harvard-Smithonian Center for Astrophysics	3 weeks
Dr. PERLEKAR, Prasad	TIFR Centre for Interdisciplinary Sciences	3 weeks
Prof. ROGACHEVSKII, Igor	Univ. Ben-Gurion	4 weeks
Prof. SOLDATI, Alfredo	Univ. Udine	2 weeks
Prof. STEINBERG, Victor	Weizmann Inst. of Science	3 weeks
Prof. TOSCHI, Federico	Univ. Eindhoven	4 weeks
Dr. VARIANO, Evan	Univ. California	3 weeks
Dr. VINCENZI, Dario	Univ. Nice Sophia Antipolis	2 weeks
Prof. VOTH, Greg	Univ. Wesleyan	2 weeks
Prof. WETTLAUFER, John	Yale Univ.	2 weeks
Prof. WILKINSON, Michael	Univ. Open	4 weeks
Dr. ZHAO, Lihao	Univ. Norwegian	2 weeks

Table 46: Summary of visits in connection with the program on "Novel Directions in Frustrated and Critical Magnetism" (14 July – 8 August 2014)

Name	organization	duration
Dr. Alet, Fabien	CNRS	2 weeks
Andreanov, Alexei	Max Planck Inst.	2 weeks
Baez, Maria Laura	Inst. Fis. Liq. Sist. Biol. (La Plata)	3 weeks
Dr. Bovo, Laura	Univ. College London	2 weeks
Prof. Capponi, Sylvain	Univ. Toulouse	2 weeks
Prof. Chang, Lieh-Jeng	Univ. National Cheng Kung	2 weeks
Prof. Damle, Kedar	Tata Inst.	2 weeks
Ducatman, Samuel	Univ. Wisconsin-Madison	4 weeks
Dr. Fjaerestad, John	Univ. Norwegian	2 weeks
Prof. Gingras, Michel	Univ. Waterloo	2 weeks
Prof. Guo, Wenan	Univ. Beijing Normal	2 weeks
Dr. Iqbal, Yasir	International Centre for Theor. Phys.	4 weeks
Prof. Kaul, Ribhu	Univ. Kentucky	4 weeks
Dr. Lizarraga, Raquel	Univ. Austral de Chile	4 weeks
Dr. McClarty, Paul	Wadham College Oxford	2 weeks
Prof. Mila, Frederic	Ecole Polytechnique Federale de Lausanne	2 weeks
Prof. Normand, Bruce	Univ. Renmin	2 weeks
Prof. Nussinov, Zohar	Univ. Washington	4 weeks
Dr. Onoda, Shigeki	RIKEN	2 weeks
Prof. Perkins, Natalia	Univ. Wisconsin-Madison	2 weeks
Dr. Petrova, Olga	Max Planck Inst.	3 weeks
Dr. Pomaranski, David	Univ. Waterloo	4 weeks
Dr. Powell, Stephen	Univ. Nottingham	4 weeks
Dr. Sandvik, Anders	Univ. Boston	3 weeks
Dr. Sellmann, Daniel	Univ. Kaiserslautern	2 weeks
Dr. Serna, Pablo	Univ. Murcia	2 weeks
Dr. Slingerland, Joost	Univ. National	2 weeks

Table 47: Summary of visits in connection with the program on "Quantum Engineering of States and Devices" (11 August – 5 September 2014)

Name	organization	duration
Prof. Östlund, Stellan	Univ. Gothenburg	3 weeks
Dr. Bardarson, Jens H.	Max Planck Inst.	2 weeks
Prof. Batchelor, Murray	Univ. Chongqing	2 weeks
Dr. Bayat, Abolfazl	Univ. College London	4 weeks
Björnson, Kristofer	Univ. Uppsala	4 weeks
Prof. Black-Schaffer, Annica	Univ. Uppsala	4 weeks
Prof. Bose, Sougato	Univ. College London	2 weeks
Dr. Buccheri, Francesco	IIP-UFRN	3 weeks
Dr. Bucciantini, Leda	Univ. Pisa	2 weeks
Dr. Burrello, Michele	Max Planck Inst.	2 weeks
Dr. Cappelli, Andrea	INFN	2 weeks
Prof. Carmelo, Jose	Univ. Minho	2 weeks
Dr. Carvalho, Manuela	Univ. de Braslia	3 weeks
Dr. De Martino, Alessandro	Univ. City	2 weeks
Dr. Deb Oindrila	Indian Inst. of Science	3 weeks
Dr. Diamantini, Cristina	Univ. Perugia	2 weeks
Prof. Egger, Reinhold	Univ. Heinrich Heine	2 weeks
Dr. Eriksson, Erik	Univ. Heinrich Heine	2 weeks
Dr. Fremling, Mikael	Stockholm Uiversity	4 weeks
Prof. Hong, Jongbae	Postech	3 weeks
Dr. Hormozi, Layla	Univ. National	2 weeks
Prof. Johannesson, Henrik	Univ. Gothenburg	4 weeks
Dr. Kolodrubetz, Michael	Univ. Boston	2 weeks
Dr. Komendova, Lucia	Univ. Uppsala	4 weeks
Prof. Korepin, Vladimir	Univ. Stony Brook	2 weeks
Dr. Laurell, Pontus	Univ. Texas at Austin	3 weeks
Dr. Lee, Seung-Sup	KAIST	2 weeks
Dr. Möller, Gunnar	Univ. Cambridge	2 weeks
Dr. Malard Sales Andrade, Mariana	Univ. Brasilia	2 weeks
Dr. Mross, David	Caltech	3 weeks
Prof. Oshikawa, Masaki	Univ. Tokyo	2 weeks
Dr. Paganelli, Simone	International Inst. of Physiscs	2 weeks
Dr. Ramazashvili, Revaz	CNRS	3 weeks
Dr. Randellini, Enrico	Univ. and	2 weeks
Prof. Shtengel, Kirill	Univ. California	2 weeks
Dr. Silvestrov, Peter	TU Braunschweig	3 weeks
Prof. Sim, Heung-Sun	KAIST	2 weeks
Dr. Slingerland, Joost	Univ. National	2 weeks
Prof. Sodano, Pasquale	International Inst. of Physics-UFRN	4 weeks
Dr. Ström, Anders	Inst. für Mathematische Physik	2 weeks
Prof. Tagliacozzo, arturo	Univ. di Napoli "Federico II"	4 weeks
Dr. Tavanfar, Alireza	International Inst. of Physics	4 weeks
Dr. Zazunov, Alex	Univ. Heinrich Heine	2 weeks

Table 48: Summary of visits in connection with the program on "Computational Challenges in Nuclear and Many-Body Physics" (15 September – 10 October 2014)

Name	organization	duration
Prof. BERTSCH, George	Univ. Washington	3 weeks
Prof. BISHOP, Raymond	Univ. Manchester	2 weeks
Prof. BLACK-SCHAFFER, Annica	Univ. Uppsala	4 weeks
Dr. CARLSON, Joseph	Los Alamos National Laboratory	2 weeks
DUGUET, Thomas	CEA Saclay	2 weeks
Prof. DUKELSKY, Jorge	Inst. de Estructura de la Materia	3 weeks
GAO, Zao-Chun	China Inst. of Atomic Energy	2 weeks
Dr. GILBRETH, Christopher	Yale Univ.	2 weeks
Prof. GUDMUNDSSON, Vidar	Univ. Iceland	2 weeks
Prof. GUIDRY, Mike	Univ. Tennessee	2 weeks
Dr. HOLT, Jason	TU Darmstadt	2 weeks
Dr. IDINI, Andrea	TU Darmstadt	2 weeks
Dr. MARIS, Pieter	Univ. Iowa State	2 weeks
Dr. MICHEL, Nicolas	GANIL	2 weeks
Neergård, Kai	Univ. Copenhagen	2 weeks
ORTEGA, Adrian	UNAM (Mexico)	2 weeks
Prof. PFANNKUCHE, Daniela	Univ. Hamburg	2 weeks
Prof. ROBLEDO, Luis	Univ. Autonoma de Madrid	2 weeks
Dr. SANDULESCU, Nicolae	NIPNE	2 weeks
Prof. SUN, Yang	Univ. Shanghai Jiao Tong	2 weeks
Dr. YANNOULEAS, Constantine	Georgia Inst. of Technology	2 weeks
Prof. ZHOU, Shan-Gui	Inst. of Theor. Phys.	2 weeks

Table 49: Summary of visits in connection with the program on "Water the Most Anomalous Liquid" (13 October – 7 November 2014)

Name	organization	duration
Dr. Amann-Winkel, Katrin	Univ. Innsbruck	2 weeks
Prof. Anisimov, Mikhail	Univ. Maryland	2 weeks
Prof. Bellissent-Funel, Marie-Claire	CNRS	2 weeks
Prof. Björneholm, Olle	Uppsala Univ.	3 weeks
Prof. Bonn, Mischa	Max Planck Inst.	2 weeks
Prof. Car, Roberto	Univ. Princeton	2 weeks
Dr. Cerveny, Silvina	Material Physics Centre	2 weeks
Dr. Fang, Wei	Univ. College London	2 weeks
Dr. Fransson, Thomas	Linköping Univ.	2 weeks
Prof. Gillan, Michael	Univ. College London	2 weeks
Prof. Harada, Yoshihisa	Univ. Tokyo	2 weeks
Dr. Henchman, Richard	Univ. Manchester	4 weeks
Dr. Liu, Yuan	IFM, Linköping Univ.	2 weeks
Dr. Lu, Jibao	Univ. Utah	2 weeks
Prof. Mallamace, Francesco	Univ. Messina	2 weeks
Dr. Nagata, Yuki	Univ. Tokyo	2 weeks
Prof. Ojamäe, Lars	Univ. Linköping	3 weeks
Dr. Paesani, Francesco	Univ. California	2 weeks
Dr. Perakis, Fivos	SLAC / Stanford	3 weeks
Prof. Pogorelov, Valeriy	Univ. Taras Shevchenko National	2 weeks
Dr. Schlesinger, Daniel	Phys. Dept, Stockholm Univ.	4 weeks
Dr. Sellberg, Jonas	Univ. Uppsala	4 weeks
Dr. Shen, Huaze	Univ. Peking	4 weeks
Dr. Skinner, Lawrie	stony brook Univ.	2 weeks
Prof. Spoel, David	Univ. Uppsala	4 weeks
Tang, Fujie	Univ. Peking	4 weeks
Dr. Werner, Josephina	Univ. Uppsala	4 weeks
Dr. Xu, Yao	Univ. Ruhr	4 weeks
Prof. Xu, Limei	Univ. Peking	3 weeks

C. Training courses and recruited PhD students and post-docs

C1. Research training courses organized by Nordita

(01.01.2010 and 31.12.2014)

1. Nordita Winter School 2010 on Dynamos: Above, Below, and In the Laboratory: 11-22 January 2010
   6 students from Nordita and 34 from outside (10 Nordic)

2. Nordita Winter School 2011 on Condensed Matter Physics: 10-21 January 2011.
   1 student from Nordita and 29 from outside (11 Nordic)

3. School on Data Assimilation: 26 April - 6 May 2011
   7 students from Nordita and 22 from outside (15 Nordic)

4. Summer School in Random Geometry: 8-12 August 2011
   4 students from Nordita and 32 from outside (25 Nordic)

5. Nordita Winter School 2012 on Theoretical Particle Physics: 10-21 January 2012
   5 students from Nordita and 34 from outside (39 Nordic)

6. Mini-School on Advanced Simulation Methods for Biomolecular Systems: 27 February - 2 March 2012
   0 students from Nordita and 39 from outside (19 Nordic)

7. Course in Lattice Boltzmann Methods for Simulation of Complex Phenomena Across
   [No registration of attenddees]

8. Nordita Master Class in Physics 2012: 28 July - 3 August 2012
   0 students from Nordita and 35 from outside (35 Nordic)

9. Nordita Winter School 2013 in High-Energy Astrophysics: 7-18 January 2013
   4 students from Nordita and 24 from outside (21 Nordic)

10. Nordita Winter School 2014 on Condensed Matter Physics: 6-17 January 2014
    4 students from Nordita and 27 from outside (26 Nordic)

11. Nordita School on Integrability: 4-12 August 2014
    5 students from Nordita and 36 from outside (10 Nordic)

C2. Recruited PhD and Post-docs

PhD students

1. Simon Candelaresi: 01.03.2009- 31.03.2013. SU, A. Brandenburg
2. Fabio Del Sordo: 31.01.2009-31.01.2013. SU, A. Brandenburg
3. Kemel Koen: 31.01.2009-31.01.2013. SU, A. Brandenburg
4. Warnecke Jörn:01.08.2009- 31.07.2013. SU, A. Brandenburg
5. Zingg Tobias: 01.10.2008-31.07.2011. Univ. of Iceland, L. Thorlacius
6. Pinheiro Fernanda: 01.04.2011-31.05.2011. SU, Jani-Petri Matikainen and J. Larsson
7. Chen-Lin Xinyi: 01.09.2013-... UU, K. Zarembo and J. Minahan
8. Jabbari Sarah: 01.09.2012-.... SU A. Brandenburg
9. Majidzadeh Garjani Babak: 01.01.2012- ...SU, E. Ardonne
10. Marino Raffaele: 01.10.2013-....KTH, R. Eichhorn
11. R. Losada Illa: 01.01.2013-...SU A. Brandenburg
12. Medina Rincon Daniel: 01.10.2014-....UU, K. Zarembo and J. Minahan
13. Banerjee Saikat: 01.09.2014-....KTH, A. Balatsky

    All recruited internationally and no Nordic. Number of PhD recruited internationally in the period 01.01.2010-31.12.2014: 8. Number of PhD awarded in the period 01.01.2010-31.12.2014: 5.

Post-docs

1. Black-Schaffer Annika: 01.10.2009-31.03.2011
2. Bucciantini Niccolo': 01.10.2009-31.08.2011
3. Chan Chi Kwan: 01.08.2010-31.07.2012
4. Chatterjee Piyali: 01.08.2009-31.07.2011
5. Chialva Diego Valerio: 01.01.2009-31.12.2010
6. Giangreco Puletti Valentina: 01.10.2009-31.07.2011
7. Guerrero Gustavo: 01.08.2009-31.07.2011

8. Horsdal Mads: 01.08.2008- 31.07.2010
9. Hubbard Alexander: 01.10.2008-31.09.2011
10. Kakashvili Paata: 01.10.2009-30.09.2011
11. Roudi Yasser: 01.10.2008-31.07.2010
12. Lahtinen Ville: 01.01.2011-31.10.2013
13. Nowling Sean: 01.10.2010-31.08.2013
14. Nurmi Sami: 01.10.2010-30.09.2012
15. Stefánsson Sigurdur: 01.10.2010-31.10.2012
16. Sunhede Daniel: 01.10.2010-30.06.2011
17. Zieme Stefan: 01.10.2010-31.08.2012
18. Zingg Tobias: 01.09.2011-31.08.2012
19. Keränen Ville: 01.05.2011-30.04.2013
20. Dmitri Bykov: 01.10.2011-30.09.2013
21. Manyuhina Oksana: 01.05.2011-30.04.2013
22. Dmitro Volin: 01.10.2011- 31.10.2013
23. Suorsa Juha: 01.09.2011-30.06.2013
24. Gressel Oliver: 01.01.2012-31.12.2013
25. Devlen Ebru: 01.08.2012-31.03.2013
26. Sreejith G J: 01.08.2012-31.07.2014
27. Goutéraux Blaise: 01.10.2012-31.08.2014
28. Jäykkä Juha: 01.10.2012-31.12.2014
29. Modestov Mikhail: 01.09.2012-30.08.2014
30. Van Eysden Anthony: 01.09.2012-31.08.2014
31. Young Donovan: 01.10.2012-30.08.2013
32. Borysov Stanislav: 01.10.2012-31.01.2015
33. Mancarella Francesco: 01.11.2012-31.03.2015

34. Kedem Yaron:01.10.2013-
35. Edge Jonathan: 01.09.2013-
36. Gudnason Sven Bjarke: 01.09.2013-
37. Karak Bidya Binay: 01.09.2013-
38. Krikun Alexander: 01.10.2013-
39. Mattsson Lars: 01.10.2013-
40. Rorai Cecilia: 01.10.2013-
41. Singh Nishant: 01.10.2013-
42. Del Sordo Fabio: 01.07.2014-
43. Savage Christopher: 01.10.2014-
44. Caputa Pavel: 01.11.2014-
45. Dekel Amit: 01.09.2014-
46. Dias Marcelo: 01.09.2014-
47. Heisenberg Lavinia: 01.09.2014-
48. Mojaza Matin: 01.09.2014-
49. Ong Yen Chin: 01.09.2014-
50. Pershoguba Sergey : 01.09.2014-
51. Marmiroli Daniele: 01.07.2013 -31.12.2014
52. Cagnazzo Alessandra: 31.03.2012-31.08.2013
53. Wijns Alexander: 01.10.2008 - 31.08.2010
54. Sefusatti Emiliano: 01.07.2008-31.08.2010

Number of post-docs who started before 01.01.2010 but finished after 01.01.2010: 12 (3 Nordic).
Number of post-docs who started after 01.01.2010 and finished before 31.10.2014: 23 (7 Nordic).
Number of post-docs who started after 01.01.2010 and will finish after 31.10.2014: 19 (5 Nordic).
Nordic means Nordic citizen + Nordic PhD.

D. List of all programs, conferences, workshops and schools 2010-2014

2014

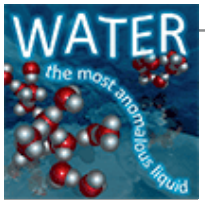
Particle Growth in Turbulent Aerosols

Meeting
7 November 2014

Coordinators: Axel Brandenburg, Bernhard Mehlig

This is a kick-off meeting in connection with the project on **Bottlenecks for Particle Growth in Turbulent Aerosols** financed by the Knut och Alice Wallenberg Foundation.

Water - the Most Anomalous Liquid



Program
13 October — 7 November 2014

Coordinators: Lars G. M. Pettersson, Anders Nilsson, Richard H. Henchman

Water is ubiquitous and a prerequisite to life as we know it, yet the fundamental origin in terms of structure and dynamics of its many anomalous properties is still under debate. No simulation model is currently able to reproduce these properties throughout the phase diagram. Experimental techniques, such as x-ray spectroscopies and x-ray and neutron scattering, femtosecond pump-probe and free-electron laser experiments in "no man's land", provide data that stimulate new theory developments. This program brings together experimentalists and theoreticians in strong synergy to advance towards a unified picture of water.

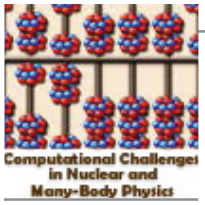
Dark Energy Interactions

Workshop
1—3 October 2014

Coordinators: Tomi Koivisto, David Fonseca Mota

The main theme of the workshop is dark energy, and even more specifically the possible interactions of dark energy. The emphasis is theoretical but observational prospects shall be discussed with great interest. Some specific topics to be covered are: screening mechanisms (Vainshtein, chameleon, disformal, symmetron), structure formation (linear and nonlinear, N-body simulations, Euclid forecasts), and couplings to visible sector (variations of constants, astrophysical and cosmological constraints).

Computational Challenges in Nuclear and Many-Body Physics



Program
15 September — 10 October 2014

Coordinators: Alexander Balatsky, Roberto Liotta, Jorge Dukelsky, Chong Qi, Ramon Wyss

Advanced theoretical methods play a central role in answering the key questions of many-body physics. We intend to discuss and compare such methods as are being applied at present in nuclear physics, condensed matter, cold atoms and quantum chemistry. The computation techniques required to achieve an understanding of existing experimental data and in predicting with high reliability new properties and processes seem at present to be dispersed in the various fields.

Experimental Search for Quantum Gravity

Workshop
1—5 September 2014

Venue: SISSA, Trieste, Italy

Coordinators: Mautizio Gasperini, Sabine Hossenfelder

The aim of this workshop is to put together experimentalist, theoreticians and phenomenologists that are interested in possible tests of the quantum/discrete structure of spacetime at very short distances. There will be a number of rather focussed talks that will discuss possible phenomenological tests of quantum gravity scenarios and propose new ideas in this direction. This is the fourth workshop of the series.

Workshop for Science Writers: Quantum Theory

Workshop
27—29 August 2014

Coordinators: Sabine Hossenfelder, George Musser

Quantum physics is a notoriously challenging subject even for the experts. The goal of this workshop is to give science writers the opportunity to take a step back and gain a broader perspective on this field. At the same time, we want to give researchers in the field the possibility to interact with science writers and share experiences about the pitfalls of science communication. Some of the topics covered: Quantum computing, quantum optics and novel tests of the foundations of quantum mechanics, topologial insulators, tests of emergent quantum mechanics, analog gravity, the gauge-gravity duality and its applications in condensed-matter physics, and searching for new physics in atomic, molecular and optical physics.

Conference on Quantum Engineering of States and Devices

Conference
18—23 August 2014

Coordinators: Sougato Bose, Reinhold Egger, Henrik Johannesson, Pasquale Sodano

This conference, which is part of the Nordita program **Quantum Engineering of States and Devices**, aims at furthering interactions among researchers working in different subfields of quantum engineered systems.

Holographic Methods and Applications

Workshop
18—22 August 2014

Venue: University of Iceland, Reykjavik, Iceland

The 2014 annual workshop of the ESF network **HoloGrav** will be held in Reykjavík, Iceland. The meeting will provide an overview and assessment of recent progress in applying holographic methods to various strongly coupled quantum systems. Focus topics include: quantum entanglement, out of equilibrium dynamics in condensed matter and in heavy ion collisions, explicit and spontaneous symmetry breaking in holographic models, holography for higher spin theories, and integrability in supersymmetric gauge theories.

Supersymmetric Field Theories

Workshop
13—16 August 2014

Coordinators: Charlotte Kristjansen, Matthias Staudacher, Konstantin Zarembo

Supersymmetry is one of the most beautiful symmetry principles in physics. Apart from possible phenomenological applications, supersymmetry has led to tremendous progress in understanding non-perturbative phenomena in quantum field theory. The aim of the workshop is to highlight recent advances in supersymmetric field theories, in particular through their relationship to other subjects such as integrable systems, string theory, gauge-string duality and AdS/CFT correspondence, QCD and conformal field theory.

Quantum Engineering of States and Devices

Program
11 August — 5 September 2014

Coordinators: Sougato Bose, Reinhold Egger, Henrik Johannesson, Pasquale Sodano

Experimental research on engineered quantum states and devices is progressing rapidly, providing special opportunities and challenges for the theorist. While the basic motivation draws from the wish to understand the intriguing coherence and correlation effects often featured, the prospects to use them for processing and storing quantum information has given the field an additional boost. The program aims at offering an interdisciplinary forum to further interactions among theorists working in different subfields of quantum engineered systems.

Nordita School on Integrability

School
4—12 August 2014

Coordinators: Charlotte Kristjansen, Matthias Staudacher, Konstantin Zarembo

Integrable systems play an important role in physics, as they give us a clue on strongly coupled phenomena in quantum field theory and statistical mechanics, the description of which by other means is impossible or very difficult. The school will cover applications of holographic duality and integrability to condensed matter systems, conformal field theory, modern methods to compute scattering amplitudes, and various aspects of integrability in AdS/CFT correspondence, such as the Thermodynamic Bethe Ansatz, applications to scattering amplitudes and Wilson loops.

Novel Directions in Frustrated and Critical Magnetism

Program
14 July — 8 August 2014

Coordinators: Eddy Ardonne, Stephen Powell, Anders Sandvik

In a frustrated system, competition between interactions hinders the tendency towards forming an ordered state, allowing for the emergence of new physical phenomena. This programme will bring together experts in the field of frustrated and critical magnetism as well as younger researchers, to discuss recent developments, explore connections between different areas of research, and generate new ideas.

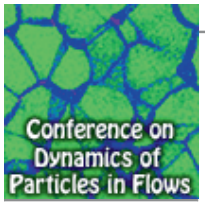
Dirac Materials, Superconductivity and Hybrid Nanostructures

Workshop
16—19 June 2014

Coordinators: Alexander Balatsky, David Abergel

We are witnessing a tremendous growth of the activities in materials that host Dirac fermions, also known as Dirac Materials. The unique properties of the linear Dirac spectrum point to interesting ways to functionalize these materials for new applications. Complementary to that discussion the workshop will cover the role of nanoscale superconductors and particular interest will be paid to hybrid structures that bring into contact different competing phases.

Conference on Dynamics of Particles in Flows



Conference
11—13 June 2014

Coordinators: Fredrik Lundell, Dhrubaditya Mitya, Bernhard Mehlig, Federico Toschi

The meeting will take place during the scientific program **Dynamics of Particles in Flows** at Nordita, 2-27 June.

Modelling and inference for dynamics in complex and disordered systems

Workshop
11—13 June 2014

Coordinators: Yasser Roudi, Manfred Opper, Peter Sollich

A NETADIS-Nordita meeting in honor of John Hertz' 70th birthday. Studying the dynamics of large systems with complex dynamics, e.g. arising from disorder in the form competing interactions, is important for a wide range of problems from spin glasses to machine learning, neuroscience, protein interaction networks, metabolic networks and systemic risk in finance. The workshop brings together experts in statistical physics approaches suited to large networks together with experts in interdisciplinary application areas to address these questions.

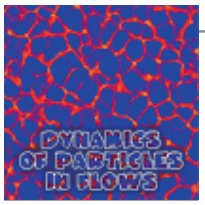
COST action FP1005 Meeting on Modelling of Fibre Suspension Flows

Meeting
3—5 June 2014

Coordinators: Fredrik Lundell, Dhrubaditya Mitra, Bernhard Mehlig, Federico Toschi

The meeting will take place during the scientific program **Dynamics of Particles in Flows** at Nordita, 2-27 June.

Dynamics of Particles in Flows: Fundamentals and Applications

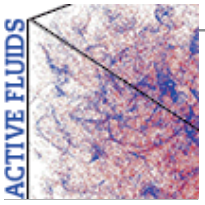


Program
2—27 June 2014

Coordinators: Fredrik Lundell, Dhrubaditya Mitra, Bernhard Mehlig, Federico Toschi

The question of the dynamics of particles in flows has a wide range of applications. Examples are the dispersion of pollutants in the atmosphere, fuel injection in a car engine, rain formation in clouds, and planet formation in circumstellar accretion disks. These examples have in common that the fundamental processes (collisions, coalescence, or breakup of particles) are determined by similar microscopic equations.

Active Fluids: New Challenges from Experiments to High-Performance Computing



Workshop
28—31 May 2014

Venue: Mariehamn, Åland

Coordinators: Mikko Alava, Guido Boffetta, Luca Brandt, Massimo Cencini, Dhrubaditya Mitra, Antti Puisto

Recent years have been characterized by an increasing interest in and awareness of the role of multi-scale interactions in shaping the ecology of wide aquatic environments as the ocean and small-scale active suspensions as biofilms. Penetrating such a new and intriguing research field demands a multidisciplinary approach accounting for the coupling of physics, chemistry, and biology from the microscale to the macroscale.

Latest Results in Dark Matter Searches

Workshop
12—14 May 2014

This 3-day workshop on latest results in Dark Matter searches is coordinated with the concurrent Nordita program **What is Dark Matter?**.

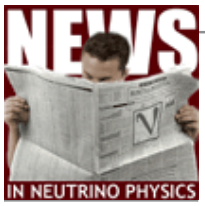
What is the Dark Matter?

Program
5—30 May 2014

Coordinators: Jan Conrad, Joakim Edsjö, Lars Bergström, Timur Delahaye

The nature of Dark Matter is one of the most important outstanding problems in modern physics. Many Dark Matter models exhibit high dimensional parameter spaces with many degeneracies and considerable expected backgrounds, and therefore a combination of all experimental data available will likely be necessary to arrive at robust conclusions regarding the nature of dark matter. The aim of the program is to bring together experimentalists, phenomenologists and theorists in order to discuss ideas, methods and models for interpreting the vast amount of data available.

News in Neutrino Physics



Program
7 April — 2 May 2014

Coordinators: Rikard Enberg, Tommy Ohlsson, Mattias Blennow, Thomas Schwetz

The focus of this program is the theory and phenomenology of neutrino physics and the role of neutrinos in astrophysics and cosmology. Important issues include extended versions of the Standard Model of particle physics including massive neutrinos, using neutrinos for probing astrophysical environments, and confronting theories with measurements. We intend the program to be a workshop in the real sense of the word, with informal discussion meetings and ample opportunities for research and discussion of common projects.

The 5th Nordic Workshop on Statistical Physics: Biological, Complex and Non-Equilibrium Systems

Workshop
26—28 March 2014

Coordinators: Ralf Eichhorn, Alberto Imparato

This workshop series provides a forum where scientists in the Nordic countries working in the area of Statistical Physics can meet regularly. Topics covered include diffusion problems, physics of DNA and bio-molecules, population dynamics, pattern formation, non-equilibrium transport, bacterial motility, single-molecule kinetics, dynamics and structure of networks, statistical inference, Monte-Carlo simulation techniques, self-assembly, soft condensed matter (colloids, liquid crystals etc.), work relations and fluctuation theorems, and many more.

Nordita Winter School 2014 on Condensed Matter Physics

School
6—17 January 2014

Coordinators: Alexander Balatsky, Stephen Powell, Eddy Ardonne, David Abergel

The aim of this research training course is to give to the participants an overview of current trends in condensed matter physics and at the same time provide them with the tools to enter into rapidly developing areas of research. The school is addressed to PhD students and young post-docs, and will last two weeks with 10 full days of teaching. As well as the basic topics fundamental to condensed matter physics, the school will cover the fields of magnetism, topological states of matter, and the physics of low-dimensional structures and interfaces.

2013

29th Nordic Network Meeting on "Strings, Fields, and Branes"

Meeting
7—9 November 2013

Coordinators: Paolo Di Vecchia, Konstantin Zarembo, Lárus Thorlacius, Blaise Goutéraux, Sven Bjarke Gudnason, Alexander Krikun, Daniele Marmiroli

The program during this meeting will consist of three lecture series by invited speakers (on 'Holographic entanglement entropy', 'Recent advances in conformal bootstrap', and 'Rigid supersymmetry on curved manifolds'), as well as short talks by students and young researchers who wish to contribute.

Galactic Magnetism in the Era of LOFAR and SKA

Workshop
23—27 September 2013

Coordinators: Rainer Beck, Axel Brandenburg, Andrew Fletcher, Bryan Gaensler, Oliver Gressel, Cathy Horellou, Sui Ann Mao

Cosmic magnetic fields reveal themselves in the form of polarized synchrotron emission. This non-thermal emission originates from relativistic electrons gyrating around the field lines and is routinely observed in the radio wavelength. The upcoming generation of radio telescopes will give polarization maps of nearby galaxies with unprecedented detail. Existing data are limited in resolution and suffer from various shortcomings related to projection effects and the finite bandwidth of radio frequencies used.

Lyman Alpha as an Astrophysical Tool Workshop

Workshop
9—13 September 2013

Coordinators: Göran Östlin, Matthew Hayes, Garrelt Mellema

The workshop is part of the program **Lyman Alpha as an Astrophysical Tool**

Lyman Alpha as an Astrophysical Tool

Program
2—27 September 2013

Coordinators: Göran Östlin, Matthew Hayes, Garrelt Mellema

This program is about the Ly α transition in Hydrogen and its astrophysical applications. Young stellar populations are dominated by massive, hot and short-lived stars that ionize their surroundings, which is hence a powerful, but complicated, probe of star forming and high redshift galaxies. This programs aims to bring together experts in modeling Ly αradiative transfer and galaxy formation, and observations of Ly α in local galaxies and the distant universe.

Superconductivity: the Second Century

Program
5—30 August 2013

Coordinators: Alexander Balatsky, Andrew Millis, Asle Sudbø, Yunkyu Bang

Superconductivity has been of central scientific interest for more than a century, and yet the progress to date has been largely empirical: despite the tremendous progress in many-body theory there is as yet no general set of rules to predict and "design" new kinds of superconductors. With the rapidly growing list of new superconductors we feel it is time to have a high level workshop, bringing together theorists and experimentalists and focusing on the established facts and challenges in understanding the fundamental properties and basic mechanisms of superconductivity.

Beyond the LHC Workshop

Workshop
25—27 July 2013

Coordinators: Are Raklev, Per Osland, Paolo Di Vecchia

The workshop is part of the program **Beyond th LHC**

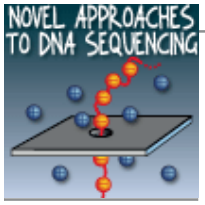
Beyond the LHC

Program
1—27 July 2013

Coordinators: Are Raklev, Per Osland, Paolo Di Vecchia

The 14 TeV LHC will look further above the electroweak scale, but where do we go beyond that to improve our understanding of the fundamental constituents of the Universe? Should we look to the results of a high-luminosity SLHC or a higher energy VLHC, do we need a precision linear collider at ILC or CLIC energies, are neutrino or flavour experiments essential to move forward, what can we learn from astrophysics?

Novel Approaches to DNA Sequencing

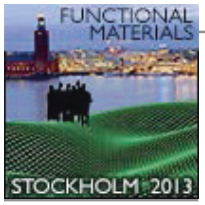


Workshop
10—14 June 2013

Coordinators: Alexander Balatsky, Ralph Scheicher, Dmitry A. Yarotski, Rodrigo G. Amorim

In order to further reduce the cost of whole-genome sequencing, radically new methods need to be developed to determine the nucleobase order in DNA. Electronic sequencing could potentially provide an attractive alternative to the existing biochemical approaches. At this workshop, leading experts in the field will discuss the science and technology underpinning various forms of electronic sequencing including nanopore-based ionic conductance measurements, embedded electrodes, and STM-based techniques.

Competing Orders in Functional Materials and their Applications

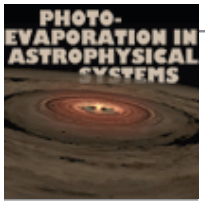


Workshop
3—5 June 2013

Coordinators: Alexander Balatsky, John Hertz, Stephen Powell, Anders Rosengren, Avadh Saxena

This workshop will focus on highlights of materials and engineering capabilities at Los Alamos, KTH and Nordita in the field of complex materials that are of great scientific interest for basic science and for nuclear energy applications. From the perspective of basic science we will discuss strong electronic correlations along with strong coupling to multiple degrees of freedom. The workshop will also discuss our current understanding of the interactions of defects at interfaces in materials subjected to extreme radiation doses and mechanical stress in order to synthesize new interface-dominated materials with tailored response under such extreme conditions.

Photo-Evaporation in Astrophysical Systems



Program
3—28 June 2013

Coordinators: Garrelt Mellema, Barbara Ercolano, Andreas Burkert, James Owen

This programme brings together astrophysical theoreticians and simulators interested in radiative feedback, specifically the dynamical effects of radiative heating of dense gaseous structures, a process known as photo-evaporation, which occurs in regions of intense star formation, in the dense planet forming discs around young stars, in massive planets orbiting close to their parent star and even in the earliest phases of galaxy formation in the Universe. As part of the programme a 5-day workshop will address the latest observational and theoretical results.

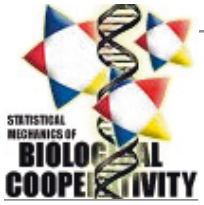
Workshop for Science Writers. Astrophysics and Cosmology

Workshop
27—29 May 2013

Coordinators: Sabine Hossenfelder, George Musser

Writing about science for the public is challenging. With deadlines looming, it's hard to carve out time to recharge your intellectual batteries, find distinctive stories, and get a broad overview of where researchers are headed. We've designed this workshop to give you the background material you need to cover astrophysics and cosmology, packing as much as possible into as short a time as possible for the busy working journalist.

Statistical Mechanics of Biological Cooperativity



Workshop
22—25 May 2013

Venue: Mariehamn, Åland

Coordinators: Erik Aurell, Mikko Alava, Ralf Eichhorn, Juho Rousu

The meeting addresses applications of statistical mechanics to biological cooperativity on all level from the molecular to strategical actions and the development of populations. The workshop is held in Mariehamn, Åland.

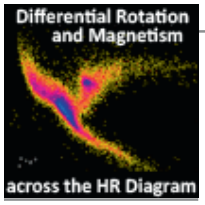
Stability and Transition

Program
6—31 May 2013

Coordinators: Ardeshir Hanifi, Dan Henningson, Luca Brandt, Jens N. Sørensen, Rama Govindarajan, Shervin Bagheri

Stability and transition of flows belong to fundamental issues in the field of fluid mechanics. Predicting flow structures and characteristics requires deep understanding of the different routes of transition. Further, similarities between the fluid behavior (instabilities) and different phenomena within the field of astrophysics give an opportunity to explain some of astrophysical phenomena based on the stability characteristics of canonical shear flows.

Differential Rotation and Magnetism across the HR Diagram



Program
8 April — 3 May 2013

Coordinators: Maarit Mantere, Petri Käpylä, Rainer Arlt

The goal of the programme is to advance our understanding of the physical processes generating differential rotation in various types of stars, and the role that this effect plays for stellar magnetic activity and dynamos. The Sun is the only star for which the internal rotation profile is observationally known thanks to helioseismology – for other stars, only the surface differential rotation can be inferred from photometric or spectroscopic observations. The main goal of the program is to investigate the connection between the theories and observations and obtain better understanding of the generation and role of differential rotation for stellar magnetism.

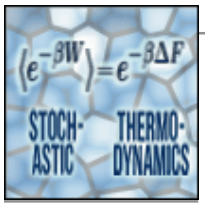
The 4th Nordic Workshop on Statistical Physics: Biological, Complex and Non-Equilibrium Systems

Workshop
20—22 March 2013

Coordinators: Ralf Eichhorn, Alberto Imparato

This workshop provides a forum where scientists in the Nordic countries working in the area of Statistical Physics can meet regularly. The workshop series brings together experts interested in the broad spectrum of timely problems in (classical) Statistical Physics, ranging from fundamental aspects in the theory of non-equilibrium processes to modern applications in biophysics.

Stochastic Thermodynamics



Program
4—15 March 2013

Coordinators: Ralf Eichhorn, Erik Aurell

Stochastic Thermodynamics represents an exciting new research direction in statistical physics, which explores fundamental aspects of non-equilibrium processes. The developments summarized under this term may be characterized by the common idea to adapt and generalize concepts from equilibrium thermodynamics to the non-equilibrium realm, typically on the level of single particle trajectories monitored over the entire system evolution.

Pushing the Boundaries with Cold Atoms

Program
21 January — 15 February 2013

Coordinators: Jonas Larson, Emil Lundh, Jani-Petri Martikainen, Chris Pethick, Päivi Törmä

During the last years, numerous achievements have been presented in the research with cold atoms, such as realizations of; various lattice models, synthetic gauge fields, orbital physics, disordered systems, non-equilibrium dynamics, dipolar gases, and many-body cavity QED. This program will gather both experamentalists and theoriticians for discussions and presentations of these topics as well as others.

Nordita Winter School 2013 in High-Energy Astrophysics

School
7—18 January 2013

Coordinators: Axel Brandenburg, Claes Fransson, Juri Poutanen, Larus Thorlacius, Stephan Rosswog, Josefin Larsson

The purpose of this winter school is to provide PhD students and young postdocs in the Nordic countries with introductory courses in a range of the most important topics in the field of astrophysics. The school will provide a way to bring together students and young postdocs across different fields, research institutions and countries.

2012

Perspectives of Fundamental Cosmology

Program
5—30 November 2012

Coordinators: Sabine Hossenfelder, Kristina Giesel, Mairi Sakellariadou, Martin Bojowald

Current cosmology provides a fascinating mix of a wealth of new observational data with deep conceptual problems still to be addressed. Several approaches in the general context of quantum gravity aim at a fundamental description of the relevant stages in the history of the universe, but none of them appears to be fully convincing and comparisons between different directions are difficult to draw. This workshop brings together a large set of experts, from both fundamental and phenomenological theory, in order to provide a snapshot of the current status and to focus future activities.

The Holographic Way Conference

Conference
15—18 October 2012

Coordinators: Troels Harmark, Niels Obers, Marta Orselli, Donovan Young

The conference is part of the program **The Holographic Way: String Theory, Gauge Theory and Black Holes**

12th European Workshop on Astrobiology (EANA 2012)

Workshop
15—17 October 2012

Coordinators: Axel Brandenburg, Fabio Del Sordo, Nils Holm, Wolf Geppert, Gianni Cataldi, Engy Ahmed

Among the topics of this EANA workshop are extrasolar planets, astrophysics and astrochemistry, geochemical origin of life, origin and evolution of the biosphere, planetary habitability and exploration, extremophiles and early life, astrobiology on the International Space Station, and artificial life.

The Holographic Way: String Theory, Gauge Theory and Black Holes

Program
1—26 October 2012

Coordinators: Troels Harmark, Niels Obers, Marta Orselli, Donovan Young

Holography has emerged as one of the most fascinating and powerful new concepts in modern theoretical physics. Some of the most exciting current and future advances in the field build on two amazing prospects of the AdS/CFT correspondence, and thereby the Holographic Principle. On the one hand, the AdS/CFT correspondence offers a way to study strongly coupled gauge theories, and more generally strongly coupled systems with many degrees of freedom. Conversely, it offers a way for understanding the quantum states and the quantum behavior of black holes.

Spin-Related Phenomena in Mesoscopic Transport

Program
3—28 September 2012

Coordinators: Ivan Shelykh, Karl-Fredrik Berggren, Olle Eriksson, Michael Pepper

Investigation of mesoscopic physics (nanometer scale systems) became a field of the intense research in last two decades, stimulated by the possibility of creation of nano-devices where the spin of the single particles could be an object of the precise manipulation and control. The workshop will seek to encourage interaction and information exchange between researchers working in the field of spin-related phenomena in various mesoscopic systems, as well as between experimentalists and theoreticians.

Astrophysics Code Comparison Workshop

Workshop
6—10 August 2012

Coordinators: Axel Brandenburg, Chi-kwan Chan, Christoph Federrath, Alexei Kritsuk, Dhrubaditya Mitra, Åke Nordlund, James Stone

Owing to their large length scales and small viscosities, astrophysical objects are often observed to be turbulent. Given that laboratory experiments are usually not available and analytical techniques are very limited, numerical simulations become the most valuable tool to study these complicated systems. By bringing together renowned experts from around the world, some of the goals of this workshop are to provide a suit of clear and simple test cases, and find ways to improve existing numerical algorithms.

Topological States of Matter: Insulators, Superconductors, and Quantum Hall Liquids

Program
30 July — 25 August 2012

Coordinators: Eddy Ardonne, Annica Black-Schaffer, Hans Hansson

Topological states of matter, such as topological insulators, topological superconductors, and quantum Hall liquids, are of great recent interest, both theoretically and experimentally. The purpose of this program is to gather experts on these different types of topological states, to discuss recent developments and create an exciting atmosphere where we can come up with new ideas.

Nordita Master Class in Physics 2012

School
28 July — 3 August 2012

Venue: Hillerød, Denmark

Coordinators: Dhrubaditya Mitra, Paolo Di Vecchia

The traditional Nordita one-week summer school in physics for students from the Nordic and Baltic countries aims at introducing frontier areas of physics research by world top scientists at a level understandable for undergraduate students, and also to stimulate further studies. The following four series of lectures, each of five hours, will be given: Physics of climate, Quantum photonics, Astronomy, High-energy physics. The lectures will be accompanied by exercises in groups and discussion sessions.

13th Marcel Grossmann Meeting

Conference
1—7 July 2012

Venue: Stockholm University and AlbaNova, Stockholm, Sweden

Coordinators: Remo Ruffini, Robert Jantzen, Kjell Rosquist

The Thirteenth Marcel Grossmann Meeting on Recent Developments in Theoretical and Experimental General Relativity, Gravitation, and Relativistic Field Theory will take place at Stockholm University and AlbaNova in Stockholm, Sweden. Nordita is one of the supporters of this international conference.

Non-locality: Aspects and Consequences

Workshop
27—29 June 2012

Coordinators: Sabine Hossenfelder

The workshop focuses on non-locality in quantum foundations, quantum information, and quantum gravity, including string theory and emergent gravity. The aim of the workshop is to bring together researchers working on various aspects of non-locality, to identify commonalities as well as differences in the role non-locality plays in different approaches to a fundamental description of space, time and matter.

Conference on the Origin of Mass 2012

Conference
11—17 June 2012

Coordinators: Paolo Di Vecchia, Francesco Sannino, Sten Hellman, Kimmo Tuominen, Claudio Pica, Chris Kouvaris

The conference is part of the program **Origin of Mass 2012.** It is the third in a series of meetings organized with the main aim of bringing together experts working at the frontier of research on the origin of bright and dark matter in particle physics, astrophysics and cosmology.

Origin of Mass 2012

Program
28 May — 22 June 2012

Coordinators: Paolo Di Vecchia, Sten Hellman, Francesco Sannino, Kimmo Tuominen, Chris Kouvaris, Claudio Pica

The program is dedicated to the present and future phenomenological impact of the first years of results from the Large Hadron Collider experiments at CERN. The aim is to have a very active scientific environment with theorists and experimentalists discussing the latest results and investigating future directions. During the event several topics will be discussed ranging from model building to collider phenomenology with the various links to cosmology. The 3rd week of the program is dedicated to the **Mass 2012 Conference**.

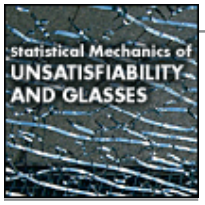
The Evolution of Protoplanetary Disks and their Coupling to Central Stars

Meeting
23 May 2012

Coordinators: Bengt Gustafsson, Axel Brandenburg

The purpose of the meeting is to explore common interests in the area of protoplanetary disks evolution in young solar systems and discuss possible Nordita initiatives to support further collaboration.

Statistical Mechanics of Unsatisfiability and Glasses



Workshop
23—26 May 2012

Venue: Mariehamn, Åland

Coordinators: Mikko Alava, Erik Aurell, Ralf Eichhorn, Pekka Orponen

The two main issues for this meeting are 'unsatisfiability' or in computer science language max-K-SAT problems and their variants, and glasses, where for the dynamical properties and real examples the low-lying energy landscape structure defines the physics. The meeting aims to extend the reach of statistical mechanics from satisfiability to unsatisfiability, and the eventual connection to glasses.

Consultation Meeting on Solar-Terrestrial Relations

Meeting
22 May 2012

Coordinators: Bengt Gustafsson, Axel Brandenburg

The area of Solar-Terrestrial Relations has played a decisive role in the growth of Astrophysics and Space Science since 150 years. In this development several Nordic research groups play important roles, but the Nordic potential to contribute decisively to this research in a coherent way seems still greater.

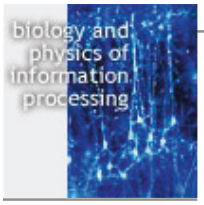
Course in Lattice Boltzmann Methods for Simulation of Complex Phenomena Across Scales

Course
15—18 May 2012

Teachers: Sauro Succi

The lattice Boltzmann equation (LBE) is a minimal form of Boltzmann kinetic equation, which is meant to simulate the dynamic behaviour of fluid flows without directly solving the equations of continuum fluid mechanics. In this series of lectures, after expounding the basic notions behind LB theories, we shall discuss selected applications from current cutting-edge research in the field, such as the modeling of fluid turbulence, the rheology of soft-glassy materials and wave propagation.

Biology and Physics of Information Processing

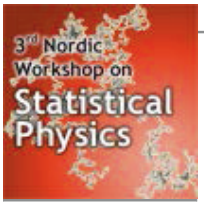


Program
16 April — 11 May 2012

Coordinators: John Hertz, Peter Latham, Yasser Roudi

In biological systems, proper function crucially depends on dealing with large amounts of information received from a usually noisy environment. Filtering out the noise, finding structure in the incoming information, memorizing this information, and eventually using it for generating proper response are fundamental operations performed by these systems. The scale at which these operations are performed ranges from individual cells to multispecies communities.

The 3rd Nordic Workshop on Statistical Physics: Biological, Complex and Non-Equilibrium Systems

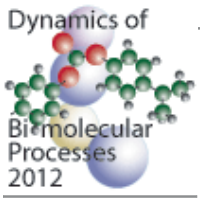


Workshop
28—30 March 2012

Coordinators: Ralf Eichhorn, Alberto Imparato

This workshop is the third one in a series which has been initiated in 2010 at Nordita. The first two editions in 2010 and 2011 were highly appreciated by the participants, what encouraged us to continue, in order to provide a forum where scientists in the Nordic countries working in the area of Statistical Physics can meet regularly. The workshop series brings together experts interested in the broad spectrum of timely problems in (classical) Statistical Physics, ranging from fundamental aspects in the theory of non-equilibrium processes to modern applications in biophysics.

Dynamics of Biomolecular Processes: From Atomistic Representations to Coarse-Grained Models

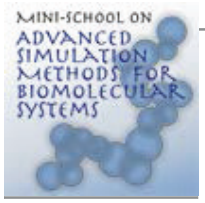


Program
27 February — 23 March 2012

Coordinators: Hans Behringer, Stefan Wallin, Ralf Eichhorn

This program focuses on the different methods for modeling the dynamics of biomolecular systems, ranging from force-field based all-atom representation of individual biomolecules to coarse-grained models for multi-component systems. In particular, the link between these 'complementary' modelling approaches, which cover distinct length and time scales, is of central interest.

Mini-School on Advanced Simulation Methods for Biomolecular Systems



School
27 February — 2 March 2012

Coordinators: Hans Behringer, Mats Wallin, Ralf Eichhorn

The school is part of the Nordita program **Dynamics of Biomolecular Processes: From Atomistic Representations to Coarse-Grained Models**. Topics include: Advanced Monte Carlo methods, Molecular dynamics and force fields, Coarse-graining and multiscale methods, Coarse-grained model of proteins, Hydrodynamic and mesoscopic simulations.

Conference on Common Trends in Gauge Fields, Strings and Integrable Systems

Conference
6—10 February 2012

Coordinators: Lisa Freyhult, Vladimir Kazakov, Charlotte Kristjansen, Joseph Minahan, Konstantin Zarembo

The conference is part of the Nordita program **Exact results in Gauge-String dualities**, and is intended to bring together experts in gauge theories, strings, and integrable systems in order to create a discussion forum for future developments in this rapidly evolving field.

Exact Results in Gauge-String Dualities

Program
23 January — 17 February 2012

Coordinators: Lisa Freyhult, Vladimir Kazakov, Charlotte Kristjansen, Joseph Minahan, Konstantin Zarembo

There has been remarkable progress in understanding non-perturbative dynamics of gauge fields and their relationship to string theory in recent years. Many important developments have been made by using methods of exactly solvable systems. The topics will include (i) exact results in the AdS/CFT correspondence (ii) scattering amplitudes (iii) supersymmetric gauge theories (iv) Bethe ansatz and exact solvability in quantum field theory

Nordita Winter School 2012 on Theoretical Particle Physics

School
9—20 January 2012

Coordinators: Troels Harmark, Paolo Di Vecchia, Konstantin Zarembo, Larus Thorlacius

The purpose of this winter school is to provide PhD students and young postdocs in the Nordic countries with introductory courses in a range of the most important topics in the field of theoretical particle physics. The school will provide a way to bring together students and young postdocs across different fields, research institutions and countries.

2011

The 28th Nordic Network Meeting on "Strings, Fields and Branes"

Meeting
1—3 December 2011

Coordinators: Ulf Lindström, Maxim Zabzine

The workshop is the part of the Nordita scientific program **Geometry of Strings and Fields** which runs November 1-30 2011 at Nordita. The program during this meeting will consist of three lecture series by invited speakers, and short talks by students and young researchers who wish to contribute.

Geometry of Strings and Fields

Program
1 November — 3 December 2011

Coordinators: Ulf Lindström, Maxim Zabzine

The 4-week program will be devoted to geometrical subjects motivated by string theory, and to recent developments in string theory and related physical fields (quantum field theory) which are of strong geometrical interest. While the program will cover all areas of interaction between string theory and geometry, to provide additional focus we will emphasize particular subareas such as: the application of supersymmetry in differential geometry, generalized geometry, vertex algebras, topological field theories.

The Solar Course, the Chemic Force, and the Speeding Change of Water

Workshop
17—21 October 2011

Coordinators: Dhrubaditya Mitra

A multidisciplinary program to celebrate the 70th birthday of *Uriel Frisch*. The principal scientific topics are going to be turbulence, nonlinear dynamics, statistical mechanics, atmospheric and biological applications of nonlinear physics. A tentative list of themes includes Fluid turbulence, Turbulent dynamo, Lattice-gas, Lattice-Boltzmann, Optimal transport and applications, Biologically inspired problems, Weather and Climate physics.

Foundations and Applications of Non-Equilibrium Statistical Mechanics

Program
19 September — 14 October 2011

Coordinators: Ralf Eichhorn, Alberto Imparato, Hans Fogedby, Carlos Mejía-Monasterio

The program is centered around modern developments in non-equilibrium statistical mechanics both with respect to fundamental aspects (fluctuation theorems, entropy production, fluctuation-dissipation theorems) as well as applications (noise-induced phenomena, biophysical problems).

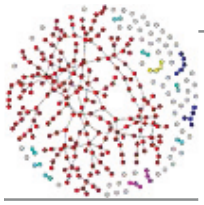
Studying Quantum Mechanics in the Time Domain

Program
22 August — 16 September 2011

Coordinators: Jan Petter Hansen, Eva Lindroth, Esa Räsänen

Thanks to novel light sources, ultrafast atomic and solid-state processes in the femto- and attosecond time scale can be monitored in real time.

Summer School in Random Geometry



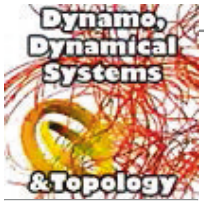
School
8—12 August 2011

Venue: University of Iceland, Reykjavik, Iceland

Coordinators: Bergfinnur Durhuus, Thordur Jonsson, Antti Kupiainen

The purpose of this school is to introduce PhD students and young researchers to a selection of topics in Random Geometry through lecture series by experts in the field. Topics to be covered include percolation theory, statistical mechanics, random matrices, stochastic Loewner evolution and random graphs.

Dynamo, Dynamical Systems and Topology



Program
25 July — 19 August 2011

Coordinators: Henrik Lundstedt, Alexander Kosovichev, Axel Brandenburg

Understanding the origin of solar and stellar magnetic field is one of the central problems of physics and astrophysics, and a key to understanding the cosmic magnetism, in general.

Symposium on Topological Quantum Computation

Workshop
4—5 June 2011

Coordinators: Ville Lahtinen

The idea is to have a small relaxed two day workshop, that in the spirit of the previous events allows plenty of time for informal discussions between the talks. The focus of the symposium will be the interplay of topological order and quantum information theory. The topics will range from implementations of topological quantum computation to employing quantum information techniques in understanding topologically ordered condensed matter systems.

String Phenomenology

Program
30 May — 25 June 2011

Coordinators: Marcus Berg, Paolo Di Vecchia, Gabriele Ferretti

The program will try to cover what string theory has to say about physics beyond the Standard Models of both particle physics and cosmology. Topics may include but are not limited to: string effective actions, string instantons, stringy supersymmetry breaking, intersecting D-branes, generalized flux compactifications, inflation in string theory, string-inspired MSSM-like models and dark matter in those models.

Statistical Mechanics and Computation of DNA Self-Assembly

Workshop
25—28 May 2011

Venue: Mariehamn, Åland

Coordinators: Erik Aurell, Mikko Alava, Ralf Eichhorn, Ralf Metzler, Pekka Orponen

This workshop, held in Mariehamn on Åland, intends to bring together scientists interested in the self-assembly of DNA nanostructures. So-called DNA origami uses the specific Watson-Crick base-pairing between complementary nucleic acids on many different short strands which in solution self-assemble to large complex yet programmable shapes. They hold promise for providing a versatile "toolbox" to engineer and manufacture complex nano-machinery with manifold applications in biotechnology and nanoelectronics.

School on Data Assimilation

School
26 April — 6 May 2011

Coordinators: Axel Brandenburg, Jenny Brandefelt, Jonas Nycander

This one-week school is part of the Nordita program "**Predictability**".

Predictability + School on Data Assimilation

Program
26 April — 27 May 2011

Coordinators: Axel Brandenburg, Erik Lindborg, Jonas Nycander, Allan Sacha BRUN, Jenny Brandefelt, Geert Brethouwer

Predicting the unpredictable is a challenge that is common to various physical systems whose dynamics is governed by the equations of fluid dynamics. The oldest example is weather prediction. Other examples include climate prediction, space weather forecast, and solar cycle forecast. The mathematics developed for these applications is extremely interesting and deserves more detailed understanding, so that these techniques can be used also in other areas where the application of this technique is less well developed.

Conference on Applications of Network Theory

Workshop
7—9 April 2011

Coordinators: Petter Holme, Petter Minnhagen

This conference is part of the Nordita program **Applications of network theory: from mechanisms to large-scale structure.**

Applications of Network Theory: From Mechanisms to Large-Scale Structure

Program
28 March — 20 April 2011

Coordinators: Petter Holme, Petter Minnhagen

The main idea is to convene key world-class researchers on complex networks and let them interact freely with the Nordic groups interested in the area. The program will be divided into four thematic areas: biological networks, general network theory, technological networks, and social networks. Many of the intended participants are interested in several of these points.
A more intense, 3-day workshop will be arranged during the middle of the program.

The 27th Nordic Network Meeting on "Strings, Fields and Branes"

Meeting
24—26 March 2011

Venue: NBI, Copenhagen, Denmark

Coordinators: Konstantinos Zoubos, Niels Obers

The 27th Nordic Network Meeting was organised by the High-Energy Theory Group of the Niels Bohr Institute and was hosted by the Niels Bohr International Academy in Copenhagen.

The Return of de Sitter

Program
28 February — 18 March 2011

Coordinators: Ariel Goobar, Fawad Hassan, Stefan Hofmann

Research topics to be covered include: cosmological probes of dark energy, induced gravity on higher codimension surfaces and defects, K–essence, alternatives to the cosmological constant, technical naturalness as a qualified guide to new physics, vacuum structure, and stringy perspectives.

The 2nd Nordic Workshop on Statistical Physics: Biological, Complex and Non-equilibrium Systems

Workshop
23—25 February 2011

Coordinators: Ralf Eichhorn, Hans Fogedby, Alberto Imparato

The workshop intends to bring together and promote collaboration between scientists from the Nordic countries working on equilibrium and non-equilibrium statistical physics with application to biological and complex systems. The subjects covered during the workshop will range from biopolymer manipulation, biological and genetic networks to glassy systems, transport phenomena in low-dimensional systems, and computer simulations.

RädlerFest: Alpha Effect and Beyond

Meeting
14—18 February 2011

Coordinators: Axel Brandenburg

The alpha effect is a prototype of non-diffusive turbulent transport phenomena that play important roles in understanding the formation of ordered magnetic fields from turbulent and chaotic motions. Examples include the large-scale magnetic field of the Sun, its 11 year cycle, as well as similar phenomena in other stars, accretion disks, and galaxies. In recent years, this subject has attracted ever growing attention through close comparisons with laboratory and numerical experiments. The purpose of this meeting is to discuss recent progress and to highlight outstanding problems, clarify controversies, and to identify future possibilities for making progress.

Nordita Winter School 2011 on Condensed Matter Physics

School
10—21 January 2011

Coordinators: Eddy Ardonne

The main purpose of this winterschool is two-fold. First of all, the students will be introduced to some of the basics milestones of condensed matter theory, such as Fermi-Liquid theory, Luttinger liquids and BCS theory. Secondly, more modern topics will be introduced at a basic level. The topics will be chosen from fields ranging from cold atomic gasses, soft condensed matter and topological phases of matter, such as topological insulators. The school will be aimed at graduate students.

Tage Erlander Award Conference "Frontiers of Condensed Matter Physics"

Conference
3—8 January 2011

Coordinators: Egor Babaev, Eddy Ardonne

Random Geometry and Applications

Program
1 November — 10 December 2010

Coordinators: Bergfinnur Durhuus, Zdzislaw Burda

The concept of Random Geometry covers a variety of techniques and methods. These include the physics of interfaces in statistical mechanical systems, polymer and membrane physics, the theory of propagating strings relevant in high-energy physics, the functional integral approach to quantum gravity, the description of gene regulatory networks as well as of computer networks and their use in the design of algorithms, and also random graphs and random maps with important applications in physics, combinatorics and probability theory.
Two workshops, 1-2 November and 6-7 December, and a mini-conference, 22-23 November, are planned during the program period.

The 26th Nordic Network Meeting on "Strings, Fields and Branes"

Meeting
21—23 October 2010

Venue: Chalmers University of Technology, Gothenburg, Sweden

Coordinators: Måns Henningson, Gabriele Ferretti

The program during this meeting will consist of two lecture series by invited speakers, and short talks by students and young researchers who wish to contribute.

International Conference on Quantum Information and Computation

Conference
4—8 October 2010

Coordinators: Ingemar Bengtsson, Gunnar Björk, Mohamed Bourennane

The interdisciplinary field of quantum information processing and communication connects at its deepest level quantum mechanics, photonics, solid state physics, superconductivity, atomic physics, and electronics with computer science and information theory in order to gain advantages and functionality in cryptography, communication, and computing that are impossible to achieve within the realm of classical physics. This conference is part of the Nordita program **Quantum Information**, will focus on physical and theoretical aspects of quantum information processing and communication, as well as on their physical implementation.

Quantum Information

Program
27 September — 29 October 2010

Coordinators: Ingemar Bengtsson, Gunnar Björk, Mohamed Bourennane

The interdisciplinary field of quantum information processing and communication connects at its deepest level quantum mechanics, photonics, solid state physics, atomic physics, and electronics with computer science and information theory in order to gain features in cryptography, communication, and computing that are impossible to achieve using classical methods. Quantum information science has also revitalized the discussions about the foundations of quantum theory. This field has grown explosively and is now one of the hottest subfields of both computer science and physics.

Conference on Quantum Matter in Low Dimensions: Opportunities and Challenges

Conference
6—10 September 2010

Coordinators: Eddy Ardonne, Henrik Johannesson, Giuseppe Mussardo

This conference, arranged jointly by NORDITA and the European Science Foundation network INSTANS, as part of the workshop **Quantum Matter in Low Dimensions: Opportunities and Challenges**, will address fundamental questions encountered in the modern physics of low-dimensional matter, with focus on phenomena in electronic and cold atom systems driven by quantum effects and strong interactions.

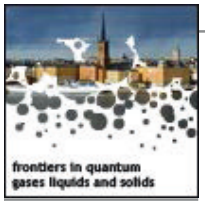
Quantum Matter in Low Dimensions: Opportunities and Challenges

Workshop
30 August — 24 September 2010

Coordinators: Eddy Ardonne, Henrik Johannesson, Giuseppe Mussardo

The workshop is aimed at bringing together experts in the fields of nanoscale and low-dimensional condensed matter physics, quantum gases, integrable models, statistical and quantum field theory, and mathematical physics, to develop interdisciplinary communication and collaborations. Experimentalists will be visiting for shorter periods, to provide overview talks on recent developments.
A conference, co-sponsored by INSTANS, will be held 6-10 September.

Conference on Frontiers in Quantum Gases Liquids and Solids

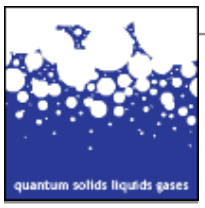


Conference
9—20 August 2010

Coordinators: Egor Babaev, Emil Lundh, Jani-Petri Martikainen, Mats Wallin, Christopher Pethick

This conference is a part of the Nordita program on "Quantum solids, liquids, and gases" and will focus on frontiers in physics of quantum solids, liquids and gases (defined in a broad sense).

Quantum Solids, Liquids, and Gases



Program
19 July — 27 August 2010

Coordinators: Egor Babaev, Emil Lundh, Jani-Petri Martikainen, Christopher Pethick, Mats Wallin

The program will focus on frontiers in physics of quantum solids, liquids and gases (defined in a broad sense).

Experimental Search for Quantum Gravity

Workshop
12—16 July 2010

Coordinators: Sabine Hossenfelder

During the last few years, various possibilities to experimentally test quantum gravity within the near future have been proposed, based on effective models that incorporate features like deformations of special relativity, extra dimensions, a fundamentally minimal length, space-time foam, or traces from quantum effects in the early universe in cosmological data. With this workshop, we bring together people from different areas in order to assess these possibilities and encourage discussions.

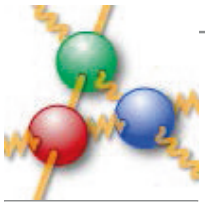
Conference on Integrability in Gauge and String Theory 2010

Conference
28 June — 2 July 2010

Coordinators: Shiraz Minwalla, Lisa Freyhult, Joseph Minahan, Konstantin Zarembo, Giuseppe Policastro

The use of integrability has lead to remarkable progress in our understanding of non-perturbative dynamics in gauge theories and their relationship to string theory. Highly unexpected links between supersymmetric field theory, spin chains, and two-dimensional sigma-models have been discovered in recent years. This conference, which is part of the Nordita program **Integrability in String and Gauge Theories; AdS/CFT Duality and its Applications**, is intended to bring together experts in gauge theories, strings, and integrable systems in order to create a discussion forum for future developments in this rapidly evolving field.

Integrability in String and Gauge Theories; AdS/CFT Duality and its Applications

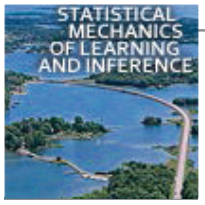


Program
31 May — 9 July 2010

Coordinators: Shiraz Minwalla, Lisa Freyhult, Joseph Minahan, Konstantin Zarembo, Giuseppe Policastro

The program has two main themes: *Integrability in N=4 gauge theories* and *AdS/CFT duality and its applications* to eg. quark-gluon plasmas, non-relativistic CFTs, hydrodynamics, and condensed matter systems.
An objective of the program is to support interaction between the two main themes. It is anticipated that specialists from each group will be simultaneously present, allowing for the exchange of new ideas between the two groups.
The 2010 conference on Integrability in Gauge and String Theories (IGST2010) will be held at the program site from 28 June to 2 July.

Statistical Mechanics of Learning and Inference

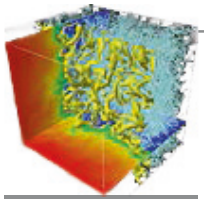


Workshop
26—29 May 2010

Coordinators: Erik Aurell, Mikko Alava, John Hertz, Yasser Roudi

For several years, ideas from statistical mechanics have been used in developing inference techniques useful for analyzing high dimensional data. Furthermore, in recent years technological advances in multi-electrode and multi-array recordings have resulted in an increase in the number of elements that can be observed simultaneously in many biological systems. This workshop, held in Mariehamn on Åland, is meant to gather scientists interested in applications of statistical mechanics for building useful inference techniques and the use of such techniques for making sense of multi-electrode/multi-array data, as well as scientits from Computer and Information Science working on similar ideas.

Turbulent Boundary Layers and Turbulent Combustion



Program
6 April — 28 May 2010

Coordinators: Axel Brandenburg, Henrik Alfredsson, Arne Johansson, Nils Erland L. Haugen, Geert Brethouwer, Philipp Schlatter

This program has two related focus areas, each of which culminate in a 2-day conference.
Turbulent boundary layers, appearing on solid surfaces of bodies submerged in fluids and in channel and pipe flows, have been the focus of experimental and analytical investigations for almost a century. Still there are several unresolved issues even related to fairly basic mechanisms.
In *turbulent combustion* there are also many unresolved problems, such as how a turbulent premixed flame propagates. The importance of basic research in connection with energy production is evident. Simulations are important, because questions regarding the temperature distribution cannot easily be addressed experimentally.

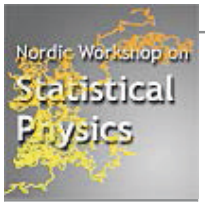
The 25th Nordic Network Meeting on "Strings, Fields and Branes"

Meeting
25—27 March 2010

Coordinators: Diego Chialva, Paolo Di Vecchia, Valentina Giangreco Puletti, Troels Harmark, Lárus Thorlacius, Alexander Wijns

The program during this meeting will consist of three lecture series by invited speakers, and short talks by students and young researchers who wish to contribute.

Nordic Workshop on Statistical Physics: Biological, Complex and Non-equilibrium Systems

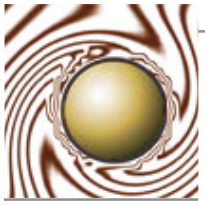


Workshop
17—19 March 2010

Coordinators: Ralf Eichhorn, Hans Fogedby, Alberto Imparato

The workshop intends to bring together and promote collaboration between scientists from the Nordic countries working on equilibrium and non-equilibrium statistical physics with application to biological and complex systems. The subjects covered during the workshop will range from biopolymer manipulation, biological and genetic networks to glassy systems, transport phenomena in low-dimensional systems, and computer simulations.

The Influence of Confinement on Phase Transitions



Program
15 February — 1 March 2010

Coordinators: B. Hjörvarsson, O. Eriksson, Anders Rosengren, S T Bramwell

The impressively successful classical theories on phase transitions are based on the thermodynamic limit, which implies *infinitely large or small extension* on all the systems that are considered. These theories fail, however, to address many important aspects, as *finiteness in extension* is apparent in most physical systems. The question is of highly generic nature and has significance within condensed matter physics, chemistry as well as biology.
This program will run in two installments: 15 February-1 March and 12-17 December 2010.

Nordita Winter School 2010 on Dynamos: Above, Below, and In the Laboratory

School
11—22 January 2010

Coordinators: Axel Brandenburg

The School will provide training for PhD students working in magnetohydrodynamics in general, and in astrophysical dynamos, the geodynamo, and laboratory dynamos in particular. In the last 10 years major theoretical advances have led to a much deeper understanding of dynamos. In addition, three different laboratory experiments have now been successful in displaying dynamo action, broadening the range of phenomena that need to be understood theoretically.

E. Complete list of publications

The complete list contains 481 refereed journal papers [1–481] and 28 conference papers [482–509] which have all been extracted from the Web of Science. The total number of non peer-reviewed publications is 87, which includes publications that appeared on the arXiv and are not on the Web of Science.

References

[1] Andreas Pedersen, Kjartan T. Wikfeldt, Leendertjan Karssemeijer, Herma Cuppen, and Hannes Jonsson. Molecular reordering processes on ice (0001) surfaces from long timescale simulations. *J. Chem. Phys.*, 141(23), 2014.

[2] S. Sridhar and Nishant K. Singh. Large-scale dynamo action due to alpha fluctuations in a linear shear flow. *Mon. Not. Roy. Astron. Soc.*, 445(4):3770–3787, 2014.

[3] Claudia de Rham, Lavinia Heisenberg, and Raquel H. Ribeiro. Ghosts and matter couplings in massive gravity, bigravity and multigravity. *Phys. Rev. D*, 90(12), 2014.

[4] Kandaswamy Subramanian and Axel Brandenburg. Traces of large-scale dynamo action in the kinematic stage. *Mon. Not. Roy. Astron. Soc.*, 445(3):2930–2940, 2014.

[5] J. Fransson, A. M. Black-Schaffer, and A. V. Balatsky. Engineered near-perfect backscattering on the surface of a topological insulator with nonmagnetic impurities. *Phys. Rev. B*, 90(24), 2014.

[6] D. Forchheimer, Stanislav S. Borysov, D. Platz, and David B. Haviland. Determining surface properties with bimodal and multimodal AFM. *Nanotech.*, 25(48), 2014.

[7] K. L. Zarembo. Strong-coupling phases planar n=2* super-Yang-Mills theory. *Theor. Mathem. Phys.*, 181(3):1522–1530, 2014.

[8] Bidya Binay Karak, Jie Jiang, Mark S. Miesch, Paul Charbonneau, and Arnab Rai Choudhuri. Flux Transport Dynamos: From Kinematics to Dynamics. *Spa. Sci. Rev.*, 186(1-4):561–602, 2014.

[9] S. N. X. Medina, S. J. Arthur, W. J. Henney, G. Mellema, and A. Gazol. Turbulence in simulated H II regions. *Mon. Not. Roy. Astron. Soc.*, 445(2):1797–1819, 2014.

[10] Konstantin V. Zakharchenko and A. V. Balatsky. Controlled healing of graphene nanopores. *Carbon*, 80:12–18, 2014.

[11] Dhrubaditya Mitra, A. Brandenburg, N. Kleeorin, and I. Rogachevskii. Intense bipolar structures from stratified helical dynamos. *Mon. Not. Roy. Astron. Soc.*, 445(1):761–769, 2014.

[12] Jorn Warnecke, Petri J. Kapyla, Maarit J. Kapyla, and Axel Brandenburg. Cause solar-like equatorward migration global convective dynamo simulations. *Astrophys. J. Lett.*, 796(1), 2014.

[13] Xinyi Chen-Lin, James Gordon, and Konstantin Zarembo. N=2*super-Yang-Mills theory at strong coupling. *J. High Energy. Phys.*, (11), 2014.

[14] T. Elperin, N. Kleeorin, M. Liberman, and I. Rogachevskii. Turbulent diffusion of chemically reacting gaseous admixtures. *Phys. Rev. E*, 90(5), 2014.

[15] A. Barekat and A. Brandenburg. Near-polytropic stellar simulations with a radiative surface. *Astron. & Astrophys.*, 571, 2014.

[16] Nishant K. Singh, Axel Brandenburg, and Matthias Rheinhardt. Fanning out solar F-mode in presence non-uniform magnetic fields? *Astrophys. J. Lett.*, 795(1), 2014.

[17] Bidya Binay Karak, Matthias Rheinhardt, Axel Brandenburg, Petri J. Kapyla, and Maarit J. Kapyla. Quenching anisotropy hydromagnetic turbulent transport. *Astrophys. J.*, 795(1), 2014.

[18] Stanislav S. Borysov, Daniel Forchheimer, and David B. Haviland. Dynamic calibration of higher eigenmode parameters of a cantilever in atomic force microscopy by using tip-surface interactions. *Beilstein J. Nanotech.*, 5:1899–1904, 2014.

[19] Zvi Bern, Scott Davies, Paolo Di Vecchia, and Josh Nohle. Low-energy behavior of gluons and gravitons from gauge invariance. *Phys. Rev. D*, 90(8), 2014.

[20] Stefano Bolognesi, Chandrasekhar Chatterjee, Sven Bjarke Gudnason, and Kenichi Konishi. Vortex zero modes, large flux limit and Ambjorn-Nielsen-Olesen magnetic instabilities. *J. High Energy Phys.*, (10), 2014.

[21] Yuhe Zhang, G. J. Sreejith, N. D. Gemelke, and J. K. Jain. Fractional Angular Momentum in Cold-Atom Systems. *Phys. Rev. Lett.*, 113(16), 2014.

[22] L. Mattsson, H. L. Gomez, A. C. Andersen, M. W. L. Smith, I. De Looze, M. Baes, S. Viaene, G. Gentile, J. Fritz, and L. Spinoglio. The Herschel exploitation of local galaxy Andromeda (HELGA) - V. Strengthening the case for substantial interstellar grain growth. *Mon. Not. Roy. Astron. Soc.*, 444(1):797–807, 2014.

[23] David A. Lowe and Larus Thorlacius. Black hole complementarity: The inside view. *Phys. Lett. B*, 737:320–324, 2014.

[24] Sven Bjarke Gudnason and Muneto Nitta. Incarnations of Skyrmions. *Phys. Rev. D*, 90(8), 2014.

[25] Adam R. Solomon, Yashar Akrami, and Tomi S. Koivisto. Linear growth of structure in massive bigravity. *J. Cosm. Astropart. Phys.*, (10), 2014.

[26] P. J. Kapyla, M. J. Kapyla, and A. Brandenburg. Confirmation of bistable stellar differential rotation profiles. *Astron. & Astrophys.*, 570, 2014.

[27] Francesco Mancarella, Giuseppe Mussardo, and Andrea Trombettoni. Energy-pressure relation for low-dimensional gases. *Nucl. Phys. B*, 887:216–245, 2014.

[28] Hong Li Zeng, John Hertz, and Yasser Roudi. L-1 regularization for reconstruction of a non-equilibrium Ising model. *Phys. Script.*, 89(10), 2014.

[29] A. C. Raga, J. Canto, G. Koenigsberger, and A. Esquivel. Ram-pressure balance surfaces for an outwardly accelerating stellar wind bow shock. *Mon. Not. Roy. Astron. Soc.*, 443(4):3284–3288, 2014.

[30] Jian-Huang She and Alexander V. Balatsky. Negative-U superconductivity on the surface of topological insulators. *Phys. Rev. B*, 90(10), 2014.

[31] Muthu Priyal, Dipankar Banerjee, Bidya Binay Karak, Andres Munoz-Jaramillo, B. Ravindra, Arnab Rai Choudhuri, and Jagdev Singh. Polar network index as a magnetic proxy for solar cycle studies. *Astrophys. J. Lett.*, 793(1), 2014.

[32] Aristomenis Donos, Blaise Gouteraux, and Elias Kiritsis. Holographic metals and insulators with helical symmetry. *J. High Energy. Phys.*, (9), 2014.

[33] Louise Anderson and Konstantin Zarembo. Quantum phase transitions in mass-deformed ABJM matrix model. *J. High Energy. Phys.*, (9), 2014.

[34] S. Candelaresi, A. Hillier, H. Maehara, A. Brandenburg, and K. Shibata. Superflare occurrence energies G-, K-, M-type dwarfs. *Astrophys. J.*, 792(1), 2014.

[35] Stanislav S. Borysov and Alexander V. Balatsky. Cross-Correlation Asymmetries and Causal Relationships between Stock and Market Risk. *Plos One*, 9(8), 2014.

[36] A. Bartl, C. J. Pethick, and A. Schwenk. Supernova Matter at Subnuclear Densities as a Resonant Fermi Gas: Enhancement of Neutrino Rates. *Phys. Rev. Lett.*, 113(8), 2014.

[37] Tirthabir Biswas, Tomi Koivisto, and Anupam Mazumdar. Atick-Witten Hagedorn conjecture, near scale-invariant matter and blue-tilted gravity power spectrum. *J. High Energy. Phys.*, (8), 2014.

[38] O. V. Manyuhina. Protein crowding on biomembranes: Analysis of contour instabilities. *Phys. Rev. E*, 90(2), 2014.

[39] Mausumi Dikpati, Jeffrey L. Anderson, and Dhrubaditya Mitra. Ensemble Kalman filter data assimilation in a Babcock-Leighton solar dynamo model: An observation system simulation experiment for reconstructing meridional flow speed. *Geophys. Res. Lett.*, 41(15):5361–5369, 2014.

[40] Axel Brandenburg. Magnetic Prandtl number dependence of the kinetic-to-magnetic dissipation ratio. *Astrophys. J.*, 791(1), 2014.

[41] Bidya Binay Karak, Leonid L. Kitchatinov, and Arnab Rai Choudhuri. A dynamo model magnetic activity in solar-like stars with different rotational velocities. *Astrophys. J.*, 791(1), 2014.

[42] Piermarco Fonda, Lasse Franti, Ville Keraenen, Esko Keski-Vakkuri, Larus Thorlacius, and Erik Tonni. Holographic thermalization with Lifshitz scaling and hyperscaling violation. *J. High Energy. Phys.*, (8), 2014.

[43] S. Jabbari, A. Brandenburg, I. R. Losada, N. Kleeorin, and I. Rogachevskii. Magnetic flux concentrations from dynamo-generated fields. *Astron. & Astrophys.*, 568, 2014.

[44] P. Tremblin, L. D. Anderson, P. Didelon, A. C. Raga, V. Minier, E. Ntormousi, A. Pettitt, C. Pinto, M. R. Samal, N. Schneider, and A. Zavagno. Age, size, and position of H II regions in the Galaxy Expansion of ionized gas in turbulent molecular clouds. *Astron. & Astrophys.*, 568, 2014.

[45] Hendrik Hansen-Goos, Erik S. Thomson, and J. S. Wettlaufer. On the edge of habitability and the extremes of liquidity. *Plan. Spa. Sci.*, 98(SI):169–181, 2014.

[46] F. Kuemmel, B. ten Hagen, R. Wittkowski, D. Takagi, I. Buttinoni, R. Eichhorn, G. Volpe, H. Loewen, and C. Bechinger. Comment on "Circular Motion of Asymmetric Self-Propelling Particles" Reply. *Phys. Rev. Lett.*, 113(2), 2014.

[47] C. A. van Eysden. Short-period pulsar oscillations following a glitch. *Astrophys. J.*, 789(2), 2014.

[48] Jose Beltran Jimenez and Tomi S. Koivisto. Extended Gauss-Bonnet gravities in Weyl geometry. *Class. Quant. Grav.*, 31(13), 2014.

[49] M. S. Vaisala, A. Brandenburg, D. Mitra, P. J. Kapyla, and M. J. Mantere. Quantifying the effect of turbulent magnetic diffusion on the growth rate of the magneto-rotational instability. *Astron. & Astrophys.*, 567, 2014.

[50] M. Modestov, V. Bychkov, G. Brodin, M. Marklund, and A. Brandenburg. Evolution of the magnetic field generated by the Kelvin-Helmholtz instability. *Phys. Plasm.*, 21(7), 2014.

[51] Abhay K. Ram, Brahmananda Dasgupta, V. Krishnamurthy, and Dhrubaditya Mitra. Anomalous diffusion of field lines and charged particles in Arnold-Beltrami-Childress force-free magnetic fields. *Phys. Plasm.*, 21(7), 2014.

[52] S. R. Rajesh and Nishant K. Singh. Time variability of viscosity parameter in differentially rotating discs. *New Astron.*, 30:38–45, 2014.

[53] D. S. L. Abergel, Jonathan M. Edge, and Alexander V. Balatsky. The role of spin-orbit coupling in topologically protected interface states in Dirac materials. *New J. Phys.*, 16, 2014.

[54] O. V. Manyuhina. Shaping thin nematic films with competing boundary conditions. *Eur. Phys. J. E*, 37(6), 2014.

[55] K. Kechedzhi and D. S. L. Abergel. Weakly damped acoustic plasmon mode in transition metal dichalcogenides with Zeeman splitting. *Phys. Rev. B*, 89(23), 2014.

[56] Yaron Kedem. Obtaining imaginary weak values with a classical apparatus: Applications for the time and frequency domains. *Phys. Lett. A*, 378(30-31):2096–2099, 2014.

[57] Donovan Young and Konstantin Zarembo. Holographic dual of the Eguchi-Kawai mechanism. *J. High Energy. Phys.*, (6), 2014.

[58] Geng Chen, Yang Zou, Xiao-Ye Xu, Jian-Shun Tang, Yu-Long Li, Jin-Shi Xu, Yong-Jian Han, Chuan-Feng Li, Guang-Can Guo, Hai-Qiao Ni, Ying Yu, Mi-Feng Li, Guo-Wei Zha, Zhi-Chuan Niu, and Yaron Kedem. Experimental Test of the State Estimation-Reversal Tradeoff Relation in General Quantum Measurements. *Phys. Rev. X*, 4(5), 2014.

[59] Tomi Koivisto, Danielle Wills, and Ivonne Zavala. Dark D-brane cosmology. *J. Cosm. Astropart. Phys.*, (6), 2014.

[60] Matthias Rheinhardt, Ebru Devlen, Karl-Heinz Radler, and Axel Brandenburg. Mean-field dynamo action from delayed transport. *Mon. Not. Roy. Astron. Soc.*, 441(1):116–126, 2014.

[61] Axel Brandenburg and Rodion Stepanov. Faraday signature magnetic helicity from reduced depolarization. *Astrophys. J.*, 786(2), 2014.

[62] Lars Mattsson, Annalisa De Cia, Anja C. Andersen, and Tayyaba Zafar. On the (in)variance of the dust-to-metals ratio in galaxies. *Mon. Not. Roy. Astron. Soc.*, 440(2):1562–1570, 2014.

[63] M. L. Meyer, G. J. Sreejith, and S. Viefers. Rotational properties of two-component Bose gases in the lowest Landau level. *Phys. Rev. A*, 89(4), 2014.

[64] B. Gouteraux. Charge transport in holography with momentum dissipation. *J. High Energy. Phys.*, (4), 2014.

[65] Dhrubaditya Mitra, Axel Brandenburg, Brahmananda Dasgupta, Eyvind Niklasson, and Abhay Ram. Particle energization through time-periodic helical magnetic fields. *Phys. Rev. E*, 89(4), 2014.

[66] A. Krikun. Charge density wave instability in holographic d-wave superconductor. *J. High Energy. Phys.*, (4), 2014.

[67] Christopher Triola, E. Rossi, and Alexander V. Balatsky. Effect of a spin-active interface on proximity-induced superconductivity in topological insulators. *Phys. Rev. B*, 89(16), 2014.

[68] Jesper Grei Greitz, Paul Howe, and Jakob Palmkvist. The tensor hierarchy simplified. *Class. Quant. Grav.*, 31(8), 2014.

[69] Marco M. Caldarelli, Joan Camps, Blaise Gouteraux, and Kostas Skenderis. AdS/Ricci-flat correspondence. *J. High Energy. Phys.*, (4), 2014.

[70] Sven Bjarke Gudnason and Muneto Nitta. Domain wall Skyrmions. *Phys. Rev. D*, 89(8), 2014.

[71] C. Rorai, P. D. Mininni, and A. Pouquet. Turbulence comes in bursts in stably stratified flows. *Phys. Rev. E*, 89(4), 2014.

[72] I. R. Losada, A. Brandenburg, N. Kleeorin, and I. Rogachevskii. Magnetic flux concentrations in a polytropic atmosphere. *Astron. & Astrophys.*, 564, 2014.

[73] Hongqi Zhang, Axel Brandenburg, and D. D. Sokoloff. magnetic helicity energy spectra a solar active region. *Astrophys. J. Lett.*, 784(2), 2014.

[74] Ralf Eichhorn and Erik Aurell. Stochastic thermodynamics. *Phys. Script.*, 89(4), 2014.

[75] D. Kobyakov and C. J. Pethick. Towards a Metallurgy of Neutron Star Crusts. *Phys. Rev. Lett.*, 112(11), 2014.

[76] M. Fremling, T. H. Hansson, and J. Suorsa. Hall viscosity of hierarchical quantum Hall states. *Phys. Rev. B*, 89(12), 2014.

[77] G. Ruediger and A. Brandenburg. alpha effect in a turbulent liquid-metal plane Couette flow. *Phys. Rev. E*, 89(3), 2014.

[78] Julien Garaud, Karl A. H. Sellin, Juha Jaykka, and Egor Babaev. Skyrmions induced by dissipationless drag in U(1)xU(1) superconductors. *Phys. Rev. B*, 89(10), 2014.

[79] Abhishek Agarwal, Arthur E. Lipstein, and Donovan Young. Scattering amplitudes of massive N = 2 gauge theories in three dimensions. *Phys. Rev. D*, 89(4), 2014.

[80] Gopal Hazra, Bidya Binay Karak, and Arnab Rai Choudhuri. Is a deep one-cell meridional circulation essential for flux transport solar dynamo? *Astrophys. J.*, 782(2), 2014.

[81] A. Brandenburg, O. Gressel, S. Jabbari, N. Kleeorin, and I. Rogachevskii. Mean-field and direct numerical simulations of magnetic flux concentrations from vertical field. *Astron. & Astrophys.*, 562, 2014.

[82] Anna Onehag, Bengt Gustafsson, and Andreas Korn. Abundances and possible diffusion of elements in M67 stars. *Astron. & Astrophys.*, 562, 2014.

[83] Joanna Tyrcha and John Hertz. Network inference with hidden units. *Mathem. Biosci. Eng.*, 11(1, SI):149–165, 2014.

[84] San Gillis, Juha Jaykka, and Milorad V. Milosevic. Vortex states in mesoscopic three-band superconductors. *Phys. Rev. B*, 89(2), 2014.

[85] Brett McInnes. Shearing black holes and scans of the quark matter phase diagram. *Class. Quant. Grav.*, 31(2), 2014.

[86] B. Gouteraux. Universal scaling properties of extremal cohesive holographic phases. *J. High Energy. Phys.*, (1), 2014.

[87] Sven Bjarke Gudnason and Muneto Nitta. Baryonic sphere: A spherical domain wall carrying baryon number. *Phys. Rev. D*, 89(2), 2014.

[88] Kun Fang, G. W. Fernando, A. V. Balatsky, A. N. Kocharian, and K. Palandage. Pairing modulations and phase separation instabilities in Bi2Sr2CaCu2O8+delta. *Phys. Lett. A*, 378(3):243–248, 2014.

[89] Elizabeth Cole, Petri J. Kapyla, Maarit J. Mantere, and Axel Brandenburg. An azimuthal dynamo wave in spherical shell convection. *Astrophys. J. Lett.*, 780(2), 2014.

[90] Nikolay Gromov, Vladimir Kazakov, Sebastien Leurent, and Dmytro Volin. Quantum spectral curve for planar N=4 super-Yang-Mills theory. *Phys. Rev. Lett.*, 112(1), 2014.

[91] Towfiq Ahmed, R. C. Albers, A. V. Balatsky, C. Friedrich, and Jian-Xin Zhu. GW quasiparticle calculations with spin-orbit coupling for the light actinides. *Phys. Rev. B*, 89(3), 2014.

[92] G. J. Sreejith and Stephen Powell. Critical behavior in the cubic dimer model at nonzero monomer density. *Phys. Rev. B*, 89(1), 2014.

[93] Lailai Zhu, Cecilia Rorai, Dhrubaditya Mitra, and Luca Brandt. A microfluidic device to sort capsules by deformability: a numerical study. *Soft Matt.*, 10(39):7705–7711, 2014.

[94] T. O. Wehling, A. M. Black-Schaffer, and A. V. Balatsky. Dirac materials. *Adv. Phys.*, 63(1):1–76, 2014.

[95] Sabine Hossenfelder. The Soccer-Ball Problem. *Sym. Int. Geom. Appl.*, 10, 2014.

[96] Sabine Hossenfelder. Theory and Phenomenology of Space-Time Defects. *Adv. High Energy. Phys.*, 2014.

[97] M. F. Ivanov, A. D. Kiverin, I. S. Yakovenko, and M. A. Liberman. Hydrogen-oxygen flame acceleration and deflagration-to-detonation transition in three-dimensional rectangular channels with no-slip walls. *Int. J. Hydr. Energy.*, 38(36):16427–16440, 2013.

[98] Zhoushen Huang, Daniel P. Arovas, and Alexander V. Balatsky. Impurity scattering in Weyl semimetals and their stability classification. *New J. Phys.*, 15, 2013.

[99] O. Gressel, R. P. Nelson, N. J. Turner, and U. Ziegler. Global hydromagnetic simulations a planet embedded in a dead zone: gap opening, gas accretion, formatia protoplanetary jet. *Astrophys. J.*, 779(1), 2013.

[100] S. Hossenfelder. Phenomenology of space-time imperfection. I. Nonlocal defects. *Phys. Rev. D*, 88(12), 2013.

[101] S. Hossenfelder. Phenomenology of space-time imperfection. II. Local defects. *Phys. Rev. D*, 88(12), 2013.

[102] N. Andersson, C. Krueger, G. L. Comer, and L. Samuelsson. A minimal model for finite temperature superfluid dynamics. *Class. Quant. Grav.*, 30(23), 2013.

[103] Oliver Gressel, Detlef Elstner, and Udo Ziegler. Towards a hybrid dynamo model for the Milky Way. *Astron. & Astrophys.*, 560, 2013.

[104] Mahendra K. Verma, Bidya Binay Karak, and Rohit Kumar. Dynamo in protostars. *Pramana J. Phys.*, 81(6):1037–1043, 2013.

[105] A. Yoshizawa, H. Kobayashi, N. Sugimoto, N. Yokoi, and Y. Shimomura. A Reynolds-averaged turbulence modelling approach to the maintenance of the Venus superrotation. *Geophys. Astrophys. Fluid Dynam.*, 107(6):614–639, 2013.

[106] Jorn Warnecke, Petri J. Kapyla, Maarit J. Mantere, and Axel Brandenburg. Spoke-like differential rotatiin a convective dynamo with a coronal envelope. *Astrophys. J.*, 778(2), 2013.

[107] J. Dustan Stokes, Hari P. Dahal, Alexander V. Balatsky, and Kevin S. Bedell. The virial theorem in graphene and other Dirac materials. *Phil. Mag. Lett.*, 93(12):672–679, 2013.

[108] Francesco Mancarella, Alexander V. Balatsky, Mats Wallin, and Anders Rosengren. Angular momentum blockade in nanoscale high-T-c superconducting grains. *Supercond. Sci. & Techn.*, 26(12), 2013.

[109] Petri J. Kapyla, Maarit J. Mantere, Elizabeth Cole, Jorn Warnecke, and Axel Brandenburg. Effects enhanced stratification on equatorward dynamo wave propagation. *Astrophys. J.*, 778(1), 2013.

[110] Ville Keranen. Nonequilibrium Wilson loops in N=4 super Yang-Mills theory. *Phys. Rev. D*, 88(10), 2013.

[111] J. G. Russo and K. Zarembo. Massive N=2 gauge theories at large N. *J. High Energy. Phys.*, (11), 2013.

[112] Giuseppe D'Appollonio, Paolo Di Vecchia, Rodolfo Russo, and Gabriele Veneziano. Microscopic unitary description of tidal excitations in high-energy string-brane collisions. *J. High Energy. Phys.*, (11), 2013.

[113] Fernanda Pinheiro, Georg M. Bruun, Jani-Petri Martikainen, and Jonas Larson. XYZ Quantum Heisenberg Models with p-Orbital Bosons. *Phys. Rev. Lett.*, 111(20), 2013.

[114] Dennis Mueller, Hagen Muenkler, Jan Plefka, Jonas Pollok, and Konstantin Zarembo. Yangian symmetry of smooth Wilson loops in N=4 super Yang-Mills theory. *J. High Energy. Phys.*, (11), 2013.

[115] Jorn Warnecke, Illa R. Losada, Axel Brandenburg, Nathan Kleeorin, and Igor Rogachevskii. Bipolar magnetic structures driven by stratified turbulence with a coronal envelope. *Astrophys. J. Lett.*, 777(2), 2013.

[116] Yoshihisa Harada, Takashi Tokushima, Yuka Horikawa, Osamu Takahashi, Hideharu Niwa, Masaki Kobayashi, Masaharu Oshima, Yasunori Senba, Haruhiko Ohashi, Kjartan Thor Wikfeldt, Anders Nilsson, Lars G. M. Pettersson, and Shik Shin. Selective Probing of the OH or OD Stretch Vibration in Liquid Water Using Resonant Inelastic Soft-X-Ray Scattering. *Phys. Rev. Lett.*, 111(19), 2013.

[117] T. P. Kaloni, A. V. Balatsky, and U. Schwingenschloegl. Substrate-enhanced superconductivity in Li-decorated graphene. *EPL*, 104(4), 2013.

[118] Chi-Kwan Chan, Dimitrios Psaltis, and Feryal Oezel. GRay: A massively parallel GPU-based code for ray tracing in relativistic spacetimes. *Astrophys. J.*, 777(1), 2013.

[119] Richard P. Nelson, Oliver Gressel, and Orkan M. Umurhan. Linear and non-linear evolution of the vertical shear instability in accretion discs. *Mon. Not. Roy. Astron. Soc.*, 435(3):2610–2632, 2013.

[120] Cecilia Rorai, K. R. Sreenivasan, and Michael E. Fisher. Propagating and annihilating vortex dipoles in the Gross-Pitaevskii equation. *Phys. Rev. B*, 88(13), 2013.

[121] Fernanda Pinheiro and A. F. R. de Toledo Piza. Delocalization and superfluidity of ultracold bosonic atoms in a ring lattice. *J. Phys. B-Atomic Mol. Opt. Phys.*, 46(20), 2013.

[122] Gordon Baym and C. J. Pethick. Normal mass density of a superfluid Fermi gas at unitarity. *Phys. Rev. A*, 88(4), 2013.

[123] Sebastien Leurent and Dmytro Volin. Multiple zeta functions and double wrapping in planar N=4 SYM. *Nucl. Phys. B*, 875(3):757–789, 2013.

[124] Axel Brandenburg, Nathan Kleeorin, and Igor Rogachevskii. Self-assembly shallow magnetic spots through strongly stratified turbulence. *Astrophys. J. Lett.*, 776(2), 2013.

[125] Sabine Hossenfelder. Can we unify quantum mechanics and gravity? *Phys. WORLD*, 26(10):42–43, 2013.

[126] A. Brandenburg and A. Lazarian. Astrophysical Hydromagnetic Turbulence. *Spa. Sci. Rev.*, 178(2-4):163–200, 2013.

[127] A. M. Bykov, A. Brandenburg, M. A. Malkov, and S. M. Osipov. Microphysics of Cosmic Ray Driven Plasma Instabilities. *Spa. Sci. Rev.*, 178(2-4):201–232, 2013.

[128] Sabine Hossenfelder. A possibility to solve the problems with quantizing gravity. *Phys. Lett. B*, 725(4-5):473–476, 2013.

[129] Koen Kemel, Axel Brandenburg, Nathan Kleeorin, Dhrubaditya Mitra, and Igor Rogachevskii. Active Region Formation through the Negative Effective Magnetic Pressure Instability. *Sol. Phys.*, 287(1-2):293–313, 2013.

[130] Tanmoy Das and A. V. Balatsky. Origin of pressure induced second superconducting dome in AyFe(2-x)Se(2) [A = K, (TI, Rb)]. *New J. Phys.*, 15, 2013.

[131] Annica M. Black-Schaffer and Alexander V. Balatsky. Odd-frequency superconducting pairing in multiband superconductors. *Phys. Rev. B*, 88(10), 2013.

[132] K. R. Shirer, J. T. Haraldsen, A. P. Dioguardi, J. Crocker, N. ApRoberts-Warren, A. C. Shockley, C. H. Lin, D. M. Nisson, J. C. Cooley, M. Janoschek, K. Huang, N. Kanchanavatee, M. B. Maple, M. J. Graf, A. V. Balatsky, and N. J. Curro. Nuclear magnetic resonance studies of pseudospin fluctuations in URu2Si2. *Phys. Rev. B*, 88(9), 2013.

[133] H. Palonen, J. Jaykka, and P. Paturi. Giant vortex states in type I superconductors simulated by Ginzburg-Landau equations. *J. Phys.-Cond. Matt.*, 25(38), 2013.

[134] Nicola A. Spaldin, Michael Fechner, Eric Bousquet, Alexander Balatsky, and Lars Nordstrom. Monopole-based formalism for the diagonal magnetoelectric response. *Phys. Rev. B*, 88(9), 2013.

[135] C. Zhou, C. Reichhardt, M. J. Graf, J. J. Su, A. V. Balatsky, and I. J. Beyerlein. Comment on "Giant Plasticity of a Quantum Crystal". *Phys. Rev. Lett.*, 111(11), 2013.

[136] F. Deuretzbacher, G. M. Bruun, C. J. Pethick, M. Jona-Lasinio, S. M. Reimann, and L. Santos. Self-bound many-body states of quasi-one-dimensional dipolar Fermi gases: Exploiting Bose-Fermi mappings for generalized contact interactions. *Phys. Rev. A*, 88(3), 2013.

[137] Stanislav S. Borysov, Daniel Platz, Astrid S. de Wijn, Daniel Forchheimer, Eric A. Tolen, Alexander V. Balatsky, and David B. Haviland. Reconstruction of tip-surface interactions with multimodal intermodulation atomic force microscopy. *Phys. Rev. B*, 88(11), 2013.

[138] Matteo Marsili, Iacopo Mastromatteo, and Yasser Roudi. On sampling and modeling complex systems. *J. Stat. Mech.-Th. Exp.*, 2013.

[139] Dmitri Bykov. The Geometry of Antiferromagnetic Spin Chains. *Comm. Mathem. Phys.*, 322(3):807–834, 2013.

[140] Francesco Picano, Wim-Paul Breugem, Dhrubaditya Mitra, and Luca Brandt. Shear Thickening in Non-Brownian Suspensions: An Excluded Volume Effect. *Phys. Rev. Lett.*, 111(9), 2013.

[141] Dhrubaditya Mitra, J. S. Wettlaufer, and Axel Brandenburg. Can planetesimals form by collisional fusion? *Astrophys. J.*, 773(2), 2013.

[142] K. Hebeler, J. M. Lattimer, C. J. Pethick, and A. Schwenk. Equation of State and Neutron Star Properties Constrained by Nuclear Physics and Observation. *Astrophys. J.*, 773(1), 2013.

[143] David A. Lowe and Larus Thorlacius. Pure states and black hole complementarity. *Phys. Rev. D*, 88(4), 2013.

[144] Erico L. Rempel, Abraham C. L. Chian, Axel Brandenburg, Pablo R. Munoz, and Shawn C. Shadden. Coherent structures and the saturation of a nonlinear dynamo. *J. Fluid Mech.*, 729:309–329, 2013.

[145] S. Jabbari, A. Brandenburg, N. Kleeorin, D. Mitra, and I. Rogachevskii. Surface flux concentrations in a spherical alpha 2 dynamo. *Astron. & Astrophys.*, 556, 2013.

[146] I. R. Losada, A. Brandenburg, N. Kleeorin, and I. Rogachevskii. Competition of rotation and stratification in flux concentrations. *Astron. & Astrophys.*, 556, 2013.

[147] T. Elperin, N. Kleeorin, M. Liberman, and I. Rogachevskii. Tangling clustering instability for small particles in temperature stratified turbulence. *Phys. FluidS*, 25(8), 2013.

[148] Andreas Svedin, Milena C. Cuellar, and Axel Brandenburg. Data assimilation for stratified convection. *Mon. Not. Roy. Astron. Soc.*, 433(3):2278–2285, 2013.

[149] Steven J. Lade, Alessandro Tavoni, Simon A. Levin, and Maja Schluter. Regime shifts in a social-ecological system. *Theor. Ecol.*, 6(3, SI):359–372, 2013.

[150] Caizhi Zhou, Jung-Jung Su, Matthias J. Graf, Charles Reichhardt, Alexander V. Balatsky, and Irene J. Beyerlein. Plastic response of dislocation glide in solid helium under dc strain-rate loading. *Phys. Rev. B*, 88(2), 2013.

[151] Gordon Baym, D. H. Beck, and C. J. Pethick. Transport in very dilute solutions of He-3 in superfluid He-4. *Phys. Rev. B*, 88(1), 2013.

[152] Teresia Mansson, Ville Lahtinen, Juha Suorsa, and Eddy Ardonne. Condensate-induced transitions and critical spin chains. *Phys. Rev. B*, 88(4), 2013.

[153] S. Hossenfelder. Comment on "Relative locality and the soccer ball problem". *Phys. Rev. D*, 88(2), 2013.

[154] Francesco Mancarella, Andrea Trombettoni, and Giuseppe Mussardo. Statistical interparticle potential of an ideal gas of non-Abelian anyons. *J. Phys. A-Mathem. Theor.*, 46(27), 2013.

[155] Stefano Bo, Erik Aurell, Ralf Eichhorn, and Antonio Celani. Optimal stochastic transport in inhomogeneous thermal environments. *EPL*, 103(1), 2013.

[156] K. Kemel, A. Brandenburg, N. Kleeorin, and I. Rogachevskii. Non-uniformity effects in the negative effective magnetic pressure instability. *Phys. Script.*, T155, 2013.

[157] Annica M. Black-Schaffer and Alexander V. Balatsky. Proximity-induced unconventional superconductivity in topological insulators. *Phys. Rev. B*, 87(22), 2013.

[158] G. J. Sreejith, Ying-Hai Wu, A. Wojs, and J. K. Jain. Tripartite composite fermion states. *Phys. Rev. B*, 87(24), 2013.

[159] Oliver Gressel. Dynamo effects in magnetorotational turbulence with finite thermal diffusivity. *Astrophys. J.*, 770(2), 2013.

[160] C. Gils, E. Ardonne, S. Trebst, D. A. Huse, A. W. W. Ludwig, M. Troyer, and Z. Wang. Anyonic quantum spin chains: Spin-1 generalizations and topological stability. *Phys. Rev. B*, 87(23), 2013.

[161] Pradeep Kumar, K. Thor Wikfeldt, Daniel Schlesinger, Lars G. M. Pettersson, and H. Eugene Stanley. The Boson peak in supercooled water. *Sci. Rep.*, 3, 2013.

[162] Derek Harland, Juha Jaykka, Yakov Shnir, and Martin Speight. Isospinning hopfions. *J. Phys. A-Mathem. Theor.*, 46(22), 2013.

[163] J. Fransson, J. H. She, L. Pietronero, and A. V. Balatsky. Inelastic electron tunneling spectroscopy at local defects in graphene. *Phys. Rev. B*, 87(24), 2013.

[164] Tanmoy Das and A. V. Balatsky. Engineering three-dimensional topological insulators in Rashba-type spin-orbit coupled heterostructures. *Nature Comm.*, 4, 2013.

[165] Donovan Young. Form factors of chiral primary operators at two loops in ABJ(M). *J. High Energy. Phys.*, (6), 2013.

[166] Ebru Devlen, Axel Brandenburg, and Dhrubaditya Mitra. A mean field dynamo from negative eddy diffusivity. *Mon. Not. Roy. Astron. Soc.*, 432(2):1651–1657, 2013.

[167] Hong-Li Zeng, Mikko Alava, Erik Aurell, John Hertz, and Yasser Roudi. Maximum Likelihood Reconstruction for Ising Models with Asynchronous Updates. *Phys. Rev. Lett.*, 110(21), 2013.

[168] O. V. Manyuhina and M. Ben Amar. Thin nematic films: Anchoring effects and stripe instability revisited. *Phys. Lett. A*, 377(13):1003–1011, 2013.

[169] Klaus Larjo, David A. Lowe, and Larus Thorlacius. Black holes without firewalls. *Phys. Rev. D*, 87(10), 2013.

[170] O. V. Manyuhina, G. Tordini, W. Bras, J. C. Maan, and P. C. M. Christianen. Doubly periodic instability pattern in a smectic-A liquid crystal. *Phys. Rev. E*, 87(5), 2013.

[171] Zohar Nussinov, Patrick Johnson, Matthias J. Graf, and Alexander V. Balatsky. Mapping between finite temperature classical and zero temperature quantum systems: Quantum critical jamming and quantum dynamical heterogeneities. *Phys. Rev. B*, 87(18), 2013.

[172] D. Kobyakov and C. J. Pethick. Dynamics of the inner crust of neutron stars: Hydrodynamics, elasticity, and collective modes. *Phys. Rev. C*, 87(5), 2013.

[173] Felix Kuemmel, Borge ten Hagen, Raphael Wittkowski, Ivo Buttinoni, Ralf Eichhorn, Giovanni Volpe, Hartmut Loewen, and Clemens Bechinger. Circular Motion of Asymmetric Self-Propelling Particles. *Phys. Rev. Lett.*, 110(19), 2013.

[174] Hans Behringer, Ralf Eichhorn, and Stefan Wallin. Dynamics of biomolecular processes preface. *Phys. Script.*, 87(5), 2013.

[175] Ajit C. Balram, Ying-Hai Wu, G. J. Sreejith, Arkadiusz Wojs, and Jainendra K. Jain. Role of Exciton Screening in the 7/3 Fractional Quantum Hall Effect. *Phys. Rev. Lett.*, 110(18), 2013.

[176] Tina Kahniashvili, Alexander G. Tevzadze, Axel Brandenburg, and Andrii Neronov. Evolution of primordial magnetic fields from phase transitions. *Phys. Rev. D*, 87(8), 2013.

[177] Simon Candelaresi and Axel Brandenburg. Kinetic helicity needed to drive large-scale dynamos. *Phys. Rev. E*, 87(4), 2013.

[178] Zhoushen Huang, Tanmoy Das, Alexander V. Balatsky, and Daniel P. Arovas. Stability of Weyl metals under impurity scattering. *Phys. Rev. B*, 87(15), 2013.

[179] V. Balasubramanian, A. Bernamonti, B. Craps, V. Keranen, E. Keski-Vakkuri, B. Mueller, L. Thorlacius, and J. Vanhoof. Thermalization of the spectral function in strongly coupled two dimensional conformal field theories. *J. High Energy. Phys.*, (4), 2013.

[180] B. Gouteraux and E. Kiritsis. Quantum critical lines in holographic phases with (un)broken symmetry. *J. High Energy. Phys.*, (4), 2013.

[181] Jorge G. Russo and Konstantin Zarembo. Evidence for large-N phase transitions in N=2*theory. *J. High Energy. Phys.*, (4), 2013.

[182] E. S. Thomson, Hendrik Hansen-Goos, J. S. Wettlaufer, and L. A. Wilen. Grain boundary melting in ice. *J. Chem. Phys.*, 138(12), 2013.

[183] A. D. Kiverin, D. R. Kassoy, M. F. Ivanov, and M. A. Liberman. Mechanisms of ignition by transient energy deposition: Regimes of combustion wave propagation. *Phys. Rev. E*, 87(3), 2013.

[184] T. Schlenk, M. Bianchi, M. Koleini, A. Eich, O. Pietzsch, T. O. Wehling, T. Frauenheim, A. Balatsky, J. L. Mi, B. B. Iversen, J. Wiebe, A. A. Khajetoorians, Ph. Hofmann, and R. Wiesendanger. Controllable Magnetic Doping of the Surface State of a Topological Insulator. *Phys. Rev. Lett.*, 110(12), 2013.

[185] Marco M. Caldarelli, Joan Camps, Blaise Gouteraux, and Kostas Skenderis. AdS/Ricci-flat correspondence and the Gregory-Laflamme instability. *Phys. Rev. D*, 87(6), 2013.

[186] Alex Buchel, Jorge G. Russo, and Konstantin Zarembo. Rigorous test of non-conformal holography: Wilson loops in N=2(*) theory. *J. High Energy. Phys.*, (3), 2013.

[187] Joanna Tyrcha, Yasser Roudi, Matteo Marsili, and John Hertz. The effect of non-stationarity on models inferred from neural data. *J. Stat. Mech.-Th. Exp.*, 2013.

[188] A. A. Zheltukhin. Laplace-Beltrami operator and exact solutions for branes. *Nucl. Phys. B*, 867(3):763–778, 2013.

[189] Benjamin Dunn and Yasser Roudi. Learning and inference in a nonequilibrium Ising model with hidden nodes. *Phys. Rev. E*, 87(2), 2013.

[190] Alessandra Cagnazzo, Dmitri Sorokin, Arkady A. Tseytlin, and Linus Wulff. Semi-classical equivalence of Green-Schwarz and pure-spinor/hybrid formulations of superstrings in AdS(5) x S-5 and AdS(2) x S-2 x T-6. *J. Phys. A-Mathem. Theor.*, 46(6), 2013.

[191] Stephen Powell. Confinement of monopoles and scaling theory near unconventional critical points. *Phys. Rev. B*, 87(6), 2013.

[192] Robert W. Style, Rostislav Boltyanskiy, Yonglu Che, J. S. Wettlaufer, Larry A. Wilen, and Eric R. Dufresne. Universal Deformation of Soft Substrates Near a Contact Line and the Direct Measurement of Solid Surface Stresses. *Phys. Rev. Lett.*, 110(6), 2013.

[193] Didier Poilblanc, Adrian Feiguin, Matthias Troyer, Eddy Ardonne, and Parsa Bonderson. One-dimensional itinerant interacting non-Abelian anyons. *Phys. Rev. B*, 87(8), 2013.

[194] Gianmassimo Tasinato, Christian T. Byrnes, Sami Nurmi, and David Wands. Loop corrections and a new test of inflation. *Phys. Rev. D*, 87(4), 2013.

[195] Oliver Gressel, Abhijit Bendre, and Detlef Elstner. On the magnetic quenching of mean-field effects in supersonic interstellar turbulence. *Mon. Not. Roy. Astron. Soc.*, 429(2):967–972, 2013.

[196] F. Del Sordo, G. Guerrero, and A. Brandenburg. Turbulent dynamos with advective magnetic helicity flux. *Mon. Not. Roy. Astron. Soc.*, 429(2):1686–1694, 2013.

[197] Axel Brandenburg and Igor Rogachevskii. Special Issue: From Mean-Field to Large-Scale Dynamos Introduction. *Geophys. Astrophys. Fluid Dynam.*, 107(1-2, SI):1–2, 2013.

[198] A. Brandenburg and K-H. Raedler. Yoshizawa's cross-helicity effect and its quenching. *Geophys. Astrophys. Fluid Dynam.*, 107(1-2, SI):207–217, 2013.

[199] P. J. Kapyla, M. J. Mantere, and A. Brandenburg. Oscillatory large-scale dynamos from Cartesian convection simulations. *Geophys. Astrophys. Fluid Dynam.*, 107(1-2, SI):244–257, 2013.

[200] Andrew J. Wells, J. S. Wettlaufer, and Steven A. Orszag. Nonlinear mushy-layer convection with chimneys: stability and optimal solute fluxes. *J. Fluid Mech.*, 716:203–227, 2013.

[201] R. M. Fernandes, J. T. Haraldsen, P. Woelfle, and A. V. Balatsky. Two-band superconductivity in doped SrTiO3 films and interfaces. *Phys. Rev. B*, 87(1), 2013.

[202] Simon C. Davenport, Eddy Ardonne, Nicolas Regnault, and Steven H. Simon. Spin-singlet Gaffnian wave function for fractional quantum Hall systems. *Phys. Rev. B*, 87(4), 2013.

[203] A. Brandenburg, O. Gressel, P. J. Kapyla, N. Kleeorin, M. J. Mantere, and I. Rogachevskii. New scaling for alpha effect in slowly rotating turbulence. *Astrophys. J.*, 762(2), 2013.

[204] Jian-Huang She, Jonas Fransson, A. R. Bishop, and Alexander V. Balatsky. Inelastic Electron Tunneling Spectroscopy for Topological Insulators. *Phys. Rev. Lett.*, 110(2), 2013.

[205] C. M. Dion, O. Jukimenko, M. Modestov, M. Marklund, and V. Bychkov. Anisotropic properties of spin avalanches in crystals of nanomagnets. *Phys. Rev. B*, 87(1), 2013.

[206] K. T. Wikfeldt, E. R. Batista, F. D. Vila, and H. Jonsson. A transferable H2O interaction potential based on a single center multipole expansion: SCME. *Phys. Chem. Chem. Phys.*, 15(39):16542–16556, 2013.

[207] D. G. Yakovlev, P. Haensel, G. Baym, and Ch Pethick. Lev Landau and the concept of neutron stars. *Phys.-Usp.*, 56(3):289–295, 2013.

[208] Sabine Hossenfelder. Minimal Length Scale Scenarios for Quantum Gravity. *Liv. Rev. Rel.*, 16, 2013.

[209] Maria Aristov, Ralf Eichhorn, and Clemens Bechinger. Separation of chiral colloidal particles in a helical flow field. *Soft Matt.*, 9(8):2525–2530, 2013.

[210] Antonio Celani, Stefano Bo, Ralf Eichhorn, and Erik Aurell. Anomalous Thermodynamics at the Microscale. *Phys. Rev. Lett.*, 109(26), 2012.

[211] S. Leurent, D. Serban, and D. Volin. Six-Loop Konishi Anomalous Dimension from the Y System. *Phys. Rev. Lett.*, 109(24), 2012.

[212] Maya Bar-Dolev, Yeliz Celik, J. S. Wettlaufer, Peter L. Davies, and Ido Braslavsky. New insights into ice growth and melting modifications by antifreeze proteins. *J. Roy. Soc. Interf.*, 9(77):3249–3259, 2012.

[213] Ulf Gran, Jesper Greitz, Paul Howe, and Bengt E. W. Nilsson. Topologically gauged superconformal Chern-Simons matter theories. *J. High Energy. Phys.*, (12), 2012.

[214] I. R. Losada, A. Brandenburg, N. Kleeorin, D. Mitra, and I. Rogachevskii. Rotational effects on the negative magnetic pressure instability. *Astron. & Astrophys.*, 548, 2012.

[215] Till Bargheer, Niklas Beisert, Florian Loebbert, and Tristan McLoughlin. Conformal anomaly for amplitudes in N=6 superconformal Chern-Simons theory. *J. Phys. A-Mathem. Theor.*, 45(47), 2012.

[216] Faranggis Bagheri, Dhrubaditya Mitra, Prasad Perlekar, and Luca Brandt. Statistics of polymer extensions in turbulent channel flow. *Phys. Rev. E*, 86(5, 2), 2012.

[217] J. Soederholm, G. Bjoerk, A. B. Klimov, L. L. Sanchez-Soto, and G. Leuchs. Quantum polarization characterization and tomography. *New J. Phys.*, 14, 2012.

[218] Jun Jie Liu, Yangzong Qin, Maya Bar Dolev, Yeliz Celik, J. S. Wettlaufer, and Ido Braslavsky. Modelling the influence of antifreeze proteins on three-dimensional ice crystal melt shapes using a geometric approach. *Proc. Roy. Soc. A-Mathem. Phys. Eng. Sci.*, 468(2147):3311–3322, 2012.

[219] Tina Kahniashvili, Axel Brandenburg, Leonardo Campanelli, Bharat Ratra, and Alexander G. Tevzadze. Evolution of inflation-generated magnetic field through phase transitions. *Phys. Rev. D*, 86(10), 2012.

[220] Jaakko Nissinen and Eddy Ardonne. Local height probabilities in a composite Andrews-Baxter-Forrester model. *J. Phys. A-Mathem. Theor.*, 45(43), 2012.

[221] Jay Armas, Troels Harmark, Niels A. Obers, Marta Orselli, and Andreas Vigand Pedersen. Thermal Giant Gravitons. *J. High Energy. Phys.*, (11), 2012.

[222] A. Cagnazzo and K. Zarembo. B-field in AdS(3)/CFT2 correspondence and integrability. *J. High Energy. Phys.*, (11), 2012.

[223] Ralf Eichhorn, Hans Fogedby, Alberto Imparato, and Carlos Mejia-Monasterio. Foundations and applications of non-equilibrium statistical mechanics. *Phys. Script.*, 86(5), 2012.

[224] Alexander G. Tevzadze, Leonard Kisslinger, Axel Brandenburg, and Tina Kahniashvili. Magnetic fields from QCD phase transitions. *Astrophys. J.*, 759(1), 2012.

[225] Sabine Hossenfelder. Quantum Superpositions of the Speed of Light. *Found. Phys.*, 42(11):1452–1468, 2012.

[226] Hans Behringer and Ralf Eichhorn. Brownian dynamics simulations with hard-body interactions: Spherical particles. *J. Chem. Phys.*, 137(16), 2012.

[227] M. P. Qin, J. M. Leinaas, S. Ryu, E. Ardonne, T. Xiang, and D. H. Lee. Quantum torus chain. *Phys. Rev. B*, 86(13), 2012.

[228] Sangwoo S. Chung, Paata Kakashvili, and C. J. Bolech. Numerical simulation of the Nernst effect in extreme type-II superconductors: A negative Nernst signal and its noise power spectra. *Phys. Rev. B*, 86(13), 2012.

[229] S. Bacca, K. Hally, M. Liebendoerfer, A. Perego, C. J. Pethick, and A. Schwenk. Neutrino processes in partially degenerate neutral matter. *Astrophys. J.*, 758(1), 2012.

[230] Ville Keranen and Larus Thorlacius. Thermal correlators in holographic models with Lifshitz scaling. *Class. Quant. Grav.*, 29(19), 2012.

[231] Annica M. Black-Schaffer and Alexander V. Balatsky. Odd-frequency superconducting pairing in topological insulators. *Phys. Rev. B*, 86(14), 2012.

[232] Christos G. Tsagas. Accelerated dark flows cosmological axis. *Int. J. Mod. Phys. D*, 21(11, SI), 2012.

[233] J. G. Russo and K. Zarembo. Large N limit of N=2 SU(N) gauge theories from localization. *J. High Energy. Phys.*, (10), 2012.

[234] J. G. O'Rourke, A. J. E. Riggs, C. A. Guertler, P. W. Miller, C. M. Padhi, M. M. Popelka, A. J. Wells, A. C. West, J. Q. Zhong, and J. S. Wettlaufer. Mushy-layer dynamics in micro and hyper gravity. *Phys. FluidS*, 24(10), 2012.

[235] Jorn Warnecke, Petri J. Kapyla, Maarit J. Mantere, and Axel Brandenburg. Ejections of Magnetic Structures Above a Spherical Wedge Driven by a Convective Dynamo with Differential Rotation. *Sol. Phys.*, 280(2):299–319, 2012.

[236] Koen Kemel, Axel Brandenburg, Nathan Kleeorin, Dhrubaditya Mitra, and Igor Rogachevskii. Spontaneous Formation of Magnetic Flux Concentrations in Stratified Turbulence. *Sol. Phys.*, 280(2):321–333, 2012.

[237] Christos G. Tsagas. Dark flows and the cosmological axis. *Mon. Not. Roy. Astron. Soc.*, 426(1):L36–L40, 2012.

[238] Lukas Bogunovic, Marc Fliedner, Ralf Eichhorn, Sonja Wegener, Jan Regtmeier, Dario Anselmetti, and Peter Reimann. Chiral Particle Separation by a Nonchiral Microlattice. *Phys. Rev. Lett.*, 109(10), 2012.

[239] D. Bykov and K. Zarembo. Ladders for Wilson loops beyond leading order. *J. High Energy. Phys.*, (9), 2012.

[240] A. Brandenburg, K. H. Raedler, and K. Kemel. Mean-field transport in stratified and/or rotating turbulence (vol 539, pg A35, 2012). *Astron. & Astrophys.*, 545, 2012.

[241] A. A. Zheltukhin. Nonlinearity p-brane dynamics. *Int. J. Geometric Meth. Mod. Phys.*, 9(6), 2012.

[242] Axel Brandenburg, Dmitry Sokoloff, and Kandaswamy Subramanian. Current Status of Turbulent Dynamo Theory From Large Scale to Small-Scale Dynamos. *Spa. Sci. Rev.*, 169(1-4):123–157, 2012.

[243] K. Glampedakis, D. I. Jones, and L. Samuelsson. Gravitational Waves from Color-Magnetic "Mountains" in Neutron Stars. *Phys. Rev. Lett.*, 109(8), 2012.

[244] Petri J. Kapyla, Maarit J. Mantere, and Axel Brandenburg. Cyclic magnetic activity due to turbulent convectiin spherical wedge geometry. *Astrophys. J. Lett.*, 755(1), 2012.

[245] Jani-Petri Martikainen and Jonas Larson. Multiorbital bosons in bipartite optical lattices. *Phys. Rev. A*, 86(2), 2012.

[246] J-Q Zhong, A. T. Fragoso, A. J. Wells, and J. S. Wettlaufer. Finite-sample-size effects on convection in mushy layers. *J. Fluid Mech.*, 704:89–108, 2012.

[247] Ville Lahtinen, Andreas W. W. Ludwig, Jiannis K. Pachos, and Simon Trebst. Topological liquid nucleation induced by vortex-vortex interactions in Kitaev's honeycomb model. *Phys. Rev. B*, 86(7), 2012.

[248] S. Agarwal, W. Moon, and J. S. Wettlaufer. Trends, noise and re-entrant long-term persistence in Arctic sea ice. *Proc. Roy. Soc. A-Mathem. Phys. Eng. Sci.*, 468(2144):2416–2432, 2012.

[249] Gordon Baym and C. J. Pethick. Landau critical velocity in weakly interacting Bose gases. *Phys. Rev. A*, 86(2), 2012.

[250] D. Schumayer, S. Cormack, B. P. van Zyl, J. Farry, A. Collin, E. Zaremba, and D. A. W. Hutchinson. Quantum corrections to the semiclassical Hartree-Fock theory of a harmonically trapped Bose gas. *Eur. Phys. J. D*, 66(8), 2012.

[251] Konstantin Zarembo. Exact results in gauge-string dualities (Stockholm, Sweden, 23 January-17 February 2012). *Phys. Script.*, 86(2), 2012.

[252] J. D. Barrow, C. G. Tsagas, and K. Yamamoto. Origin of cosmic magnetic fields: Superadiabatically amplified modes in open Friedmann universes. *Phys. Rev. D*, 86(2), 2012.

[253] Alfio Bonanno, Axel Brandenburg, Fabio Del Sordo, and Dhrubaditya Mitra. Breakdown of chiral symmetry during saturation of the Tayler instability. *Phys. Rev. E*, 86(1, 2), 2012.

[254] Nils Erland L. Haugen, Nathan Kleeorin, Igor Rogachevskii, and Axel Brandenburg. Detection of turbulent thermal diffusion of particles in numerical simulations. *Phys. FluidS*, 24(7), 2012.

[255] I. N. Kitiashvili, A. G. Kosovichev, N. N. Mansour, S. K. Lele, and A. A. Wray. Vortex tubes of turbulent solar convection. *Phys. Script.*, 86(1), 2012.

[256] Nathan Kleeorin and Igor Rogachevskii. Growth rate of small-scale dynamo at low magnetic Prandtl numbers. *Phys. Script.*, 86(1), 2012.

[257] Alexander Kosovichev, Henrik Lundstedt, and Axel Brandenburg. Special issue on current research in astrophysical magnetism. *Phys. Script.*, 86(1), 2012.

[258] Erico L. Rempel, Abraham C-L Chian, and Axel Brandenburg. Lagrangian chaos in an ABC-forced nonlinear dynamo. *Phys. Script.*, 86(1), 2012.

[259] Radostin D. Simitev and Friedrich H. Busse. Bistable attractors in a model of convection-driven spherical dynamos. *Phys. Script.*, 86(1), 2012.

[260] Radostin D. Simitev and Friedrich H. Busse. Solar cycle properties described by simple convection-driven dynamos. *Phys. Script.*, 86(1), 2012.

[261] J. E. Snellman, M. Rheinhardt, P. J. Kapyla, M. J. Mantere, and A. Brandenburg. Mean-field closure parameters for passive scalar turbulence. *Phys. Script.*, 86(1), 2012.

[262] Igor Rogachevskii, Nathan Kleeorin, Axel Brandenburg, and David Eichler. Cosmic-ray current-driven turbulence mean-field dynamo effect. *Astrophys. J.*, 753(1), 2012.

[263] David Speer, Ralf Eichhorn, Mykhaylo Evstigneev, and Peter Reimann. Dimer motion on a periodic substrate: Spontaneous symmetry breaking and absolute negative mobility. *Phys. Rev. E*, 85(6, 1), 2012.

[264] Zhenhua Yu and C. J. Pethick. Induced interactions in dilute atomic gases and liquid helium mixtures. *Phys. Rev. A*, 85(6), 2012.

[265] Sabine Hossenfelder. Can we measure structures to a precision better than the Planck length? *Class. Quant. Grav.*, 29(11), 2012.

[266] J. Greitz and P. S. Howe. Half-maximal supergravity in three dimensions: supergeometry, differential forms and algebraic structure. *J. High Energy. Phys.*, (6), 2012.

[267] Gianluca Grignani, Troels Harmark, Andrea Marini, Niels A. Obers, and Marta Orselli. Thermal string probes in AdS and finite temperature Wilson loops. *J. High Energy. Phys.*, (6), 2012.

[268] Sigurdur O. Stefansson and Stefan Zohren. Spectral Dimension of Trees with a Unique Infinite Spine. *J. Stat. Phys.*, 147(5):942–962, 2012.

[269] Fernanda Pinheiro and A. F. R. de Toledo Piza. Quantum entanglement of bound particles under free center of mass dispersion. *Phys. Script.*, 85(6), 2012.

[270] Sebastian Meinhardt, Jens Smiatek, Ralf Eichhorn, and Friederike Schmid. Separation of Chiral Particles in Micro- or Nanofluidic Channels. *Phys. Rev. Lett.*, 108(21), 2012.

[271] Martin E. Pessah and Chi-kwan Chan. Hydromagnetic stresses in accretion disk boundary layers. *Astrophys. J.*, 751(1), 2012.

[272] H. Zhang, D. Moss, N. Kleeorin, K. Kuzanyan, I. Rogachevskii, D. Sokoloff, Y. Gao, and H. Xu. Current helicity active regions as a tracer large-scale solar magnetic helicity. *Astrophys. J.*, 751(1), 2012.

[273] Didier Poilblanc, Matthias Troyer, Eddy Ardonne, and Parsa Bonderson. Fractionalization of Itinerant Anyons in One-Dimensional Chains. *Phys. Rev. Lett.*, 108(20), 2012.

[274] P. J. Kapyla, A. Brandenburg, N. Kleeorin, M. J. Mantere, and I. Rogachevskii. Negative effective magnetic pressure in turbulent convection. *Mon. Not. Roy. Astron. Soc.*, 422(3):2465–2473, 2012.

[275] A. A. Zheltukhin. Toroidal p-branes, anharmonic oscillators and (hyper)elliptic solutions. *Nucl. Phys. B*, 858(1):142–154, 2012.

[276] Jay Armas, Pawel Caputa, and Troels Harmark. Domain structure of black hole space-times with a cosmological constant. *Phys. Rev. D*, 85(8), 2012.

[277] Sigurdur Orn Stefansson. Markov branching in the vertex splitting model. *J. Stat. Mech.-Th. Exp.*, 2012.

[278] L. L. Kitchatinov and A. Brandenburg. Transport of angular momentum and chemical species by anisotropic mixing in stellar radiative interiors. *Astron. Nachr.*, 333(3):230–236, 2012.

[279] Axel Brandenburg, Koen Kemel, Nathan Kleeorin, and Igor Rogachevskii. Negative effective magnetic pressure in stratified forced turbulence. *Astrophys. J.*, 749(2), 2012.

[280] A. Brandenburg and A. Petrosyan. Kinetic helicity decay in linearly forced turbulence. *Astron. Nachr.*, 333(3):195–201, 2012.

[281] A. Brandenburg and A. Petrosyan. Kinetic helicity decay in linearly forced turbulence. *Astron. Nachr.*, 333(3):195, 2012.

[282] Chi-kwan Chan, Dhrubaditya Mitra, and Axel Brandenburg. Dynamics of saturated energy condensation in two-dimensional turbulence. *Phys. Rev. E*, 85(3, 2), 2012.

[283] Fernanda Pinheiro, Jani-Petri Martikainen, and Jonas Larson. Confined p-band Bose-Einstein condensates. *Phys. Rev. A*, 85(3), 2012.

[284] A. Cetoli and C. J. Pethick. Interaction of gravitational waves with matter. *Phys. Rev. D*, 85(6), 2012.

[285] F. Dosopoulou, F. Del Sordo, C. G. Tsagas, and A. Brandenburg. Vorticity production and survival in viscous and magnetized cosmologies. *Phys. Rev. D*, 85(6), 2012.

[286] Alexander Hubbard and Axel Brandenburg. Catastrophic quenching in alpha Omega dynamos revisited. *Astrophys. J.*, 748(1), 2012.

[287] Paata Kakashvili and Eddy Ardonne. Integrability in anyonic quantum spin chains via a composite height model. *Phys. Rev. B*, 85(11), 2012.

[288] Annica M. Black-Schaffer and Alexander V. Balatsky. Strong potential impurities on the surface of a topological insulator. *Phys. Rev. B*, 85(12), 2012.

[289] A. Brandenburg, K-H. Raedler, and K. Kemel. Mean-field transport in stratified and/or rotating turbulence. *Astron. & Astrophys.*, 539, 2012.

[290] Christian T. Byrnes, Sami Nurmi, Gianmassimo Tasinato, and David Wands. Inhomogeneous non-gaussianity. *J. Cosm. Astropart. Phys.*, (3), 2012.

[291] D. Speer, R. Eichhorn, and P. Reimann. Anisotropic diffusion in square lattice potentials: Giant enhancement and control. *EPL*, 97(6), 2012.

[292] Dhrubaditya Mitra and Axel Brandenburg. Scaling and intermittency in incoherent alpha-shear dynamo. *Mon. Not. Roy. Astron. Soc.*, 420(3):2170–2177, 2012.

[293] E. Lundh and J. P. Martikainen. Kelvin-Helmholtz instability in two-component Bose gases on a lattice. *Phys. Rev. A*, 85(2), 2012.

[294] Gunnar Bjork, Amine Laghaout, and Ulrik L. Andersen. Deterministic teleportation using single-photon entanglement as a resource. *Phys. Rev. A*, 85(2), 2012.

[295] C-Y. Ng, N. Bucciantini, B. M. Gaensler, F. Camilo, S. Chatterjee, and A. Bouchard. An extreme pulsar tail protruding from frying pan supernova remnant. *Astrophys. J.*, 746(1), 2012.

[296] Jay Armas, Joan Camps, Troels Harmark, and Niels A. Obers. The Young modulus of black strings and the fine structure of blackfolds. *J. High Energy. Phys.*, (2), 2012.

[297] Agnese Bissi, Troels Harmark, and Marta Orselli. Holographic 3-point function at one loop. *J. High Energy. Phys.*, (2), 2012.

[298] K. Kemel, A. Brandenburg, N. Kleeorin, and I. Rogachevskii. Properties of the negative effective magnetic pressure instability. *Astron. Nachr.*, 333(2):95–100, 2012.

[299] G. Guerrero, M. Rheinhardt, A. Brandenburg, and M. Dikpati. Plasma flow versus magnetic feature-tracking speeds in the Sun. *Mon. Not. Roy. Astron. Soc.*, 420(1):L1–L5, 2012.

[300] Dmitri Bykov. Haldane limits via Lagrangian embeddings. *Nucl. Phys. B*, 855(1):100–127, 2012.

[301] Hendrik Hansen-Goos, Mark A. Miller, and J. S. Wettlaufer. Density Functional Theory for Baxter's Sticky Hard Spheres in Confinement. *Phys. Rev. Lett.*, 108(4), 2012.

[302] Ville Keranen, Esko Keski-Vakkuri, and Larus Thorlacius. Thermalization and entanglement following a nonrelativistic holographic quench. *Phys. Rev. D*, 85(2), 2012.

[303] Jorn Warnecke, Axel Brandenburg, and Dhrubaditya Mitra. Magnetic twist: a source and property of space weather. *J. Spa. Weath. Spa. Clim.*, 2, 2012.

[304] M. Rheinhardt and A. Brandenburg. Modeling spatio-temporal nonlocality in mean-field dynamos. *Astron. Nachr.*, 333(1):71–77, 2012.

[305] J. E. Snellman, A. Brandenburg, P. J. Kapyla, and M. J. Mantere. Verification of Reynolds stress parameterizations from simulations. *Astron. Nachr.*, 333(1):78–83, 2012.

[306] Jason Sakellariou, Yasser Roudi, Marc Mezard, and John Hertz. Effect of coupling asymmetry on mean-field solutions of the direct and inverse Sherrington-Kirkpatrick model. *Phil. Mag. Lett.*, 92(1-3, SI):272–279, 2012.

[307] V. Giangreco M. Puletti, S. Nowling, L. Thorlacius, and T. Zingg. Friedel oscillations in holographic metals. *J. High Energy. Phys.*, (1), 2012.

[308] Valentina Giangreco M. Puletti and Teresia Mansson. The dual string sigma-model of the SUq(3) sector. *J. High Energy. Phys.*, (1), 2012.

[309] Lukas Bogunovic, Ralf Eichhorn, Jan Regtmeier, Dario Anselmetti, and Peter Reimann. Particle sorting by a structured microfluidic ratchet device with tunable selectivity: theory and experiment. *Soft Matt.*, 8(14):3900–3907, 2012.

[310] Antti Niemi, Frank Wilczek, Eddy Ardonne, and Hans Hansson. Nobel Symposium 148: Graphene and Quantum Matter. *Phys. Script.*, T146, 2012.

[311] N. Bucciantini, B. D. Metzger, T. A. Thompson, and E. Quataert. Short gamma-ray bursts with extended emission from magnetar birth: jet formation and collimation. *Mon. Not. Roy. Astron. Soc.*, 419(2):1537–1545, 2012.

[312] Martina Viefhues, Ralf Eichhorn, Eugenie Fredrich, Jan Regtmeier, and Dario Anselmetti. Continuous and reversible mixing or demixing of nanoparticles by dielectrophoresis. *Lab Chip*, 12(3):485–494, 2012.

[313] Amine Laghaout, Gunnar Bjork, and Ulrik L. Andersen. Realistic limits on the nonlocality of an N-partite single-photon superposition. *Phys. Rev. A*, 84(6), 2011.

[314] Melissa Spannuth, S. G. J. Mochrie, S. S. L. Peppin, and J. S. Wettlaufer. Dynamics of colloidal particles in ice. *J. Chem. Phys.*, 135(22), 2011.

[315] G. M. Bruun and C. J. Pethick. Spin Diffusion in Trapped Clouds of Cold Atoms with Resonant Interactions. *Phys. Rev. Lett.*, 107(25), 2011.

[316] Svante Janson, Thordur Jonsson, and Sigurdur Orn Stefansson. Random trees with superexponential branching weights. *J. Phys. A-Mathem. Theor.*, 44(48), 2011.

[317] V. V. Pipin and D. D. Sokoloff. The fluctuating alpha-effect and Waldmeier relations in the nonlinear dynamo models. *Phys. Script.*, 84(6), 2011.

[318] M. J. Mantere, P. J. Kapyla, and T. Hackman. Dependence of the large-scale vortex instability on latitude, stratification, and domain size. *Astron. Nachr.*, 332(9-10, SI):876–882, 2011.

[319] P. J. Kapyla, M. J. Mantere, and A. Brandenburg. Effects of stratification in spherical shell convection. *Astron. Nachr.*, 332(9-10, SI):883–890, 2011.

[320] Koen Kemel, Axel Brandenburg, and Hantao Ji. Model of driven and decaying magnetic turbulence in a cylinder. *Phys. Rev. E*, 84(5, 2), 2011.

[321] E. Ardonne and N. Regnault. Structure of spinful quantum Hall states: A squeezing perspective. *Phys. Rev. B*, 84(20), 2011.

[322] Petri J. Kapyla, Maarit J. Mantere, and Thomas Hackman. Starspots due to large-scale vortices in rotating turbulent convection. *Astrophys. J.*, 742(1), 2011.

[323] Igor Rogachevskii, Nathan Kleeorin, Petri J. Kapyla, and Axel Brandenburg. Pumping velocity in homogeneous helical turbulence with shear. *Phys. Rev. E*, 84(5, 2), 2011.

[324] Annica M. Black-Schaffer and Jacob Linder. Majorana fermions in spin-orbit-coupled ferromagnetic Josephson junctions. *Phys. Rev. B*, 84(18), 2011.

[325] A. J. Penner, N. Andersson, L. Samuelsson, I. Hawke, and D. I. Jones. Tidal deformations of neutron stars: The role of stratification and elasticity. *Phys. Rev. D*, 84(10), 2011.

[326] Axel Brandenburg. Nonlinear small-scale dynamos at low magnetic Prandtl numbers. *Astrophys. J.*, 741(2), 2011.

[327] Christian T. Byrnes, Kari Enqvist, Sami Nurmi, and Tomo Takahashi. Strongly scale-dependent polyspectra from curvaton self-interactions. *J. Cosm. Astropart. Phys.*, (11), 2011.

[328] W. Moon and J. S. Wettlaufer. A low-order theory of Arctic sea ice stability. *EPL*, 96(3), 2011.

[329] Samriddhi Sankar Ray, Dhrubaditya Mitra, Prasad Perlekar, and Rahul Pandit. Dynamic Multiscaling in Two-Dimensional Fluid Turbulence. *Phys. Rev. Lett.*, 107(18), 2011.

[330] Karl-Heinz Radler, Axel Brandenburg, Fabio Del Sordo, and Matthias Rheinhardt. Mean-field diffusivities in passive scalar and magnetic transport in irrotational flows. *Phys. Rev. E*, 84(4, 2), 2011.

[331] Gianluca Grignani, Troels Harmark, Andrea Marini, Niels A. Obers, and Marta Orselli. Thermodynamics of the hot BIon. *Nucl. Phys. B*, 851(3):462–480, 2011.

[332] Axel Brandenburg, Koen Kemel, Nathan Kleeorin, Dhrubaditya Mitra, and Igor Rogachevskii. Detection of the negative effective magnetic pressure instability in turbulence simulations. *Astrophys. J. Lett.*, 740(2), 2011.

[333] Gordon W. Semenoff and Konstantin Zarembo. Holographic Schwinger Effect. *Phys. Rev. Lett.*, 107(17), 2011.

[334] Robert W. Style, Stephen S. L. Peppin, Alan C. F. Cocks, and J. S. Wettlaufer. Ice-lens formation and geometrical supercooling in soils and other colloidal materials. *Phys. Rev. E*, 84(4, 1), 2011.

[335] Zhenhua Yu, Gordon Baym, and C. J. Pethick. Calculating energy shifts in terms of phase shifts. *J. Phys. B-Atomic Mol. Opt. Phys.*, 44(19), 2011.

[336] M. Trzetrzelewski. Dirac equation for membranes. *Phys. Rev. D*, 84(8), 2011.

[337] P. Chatterjee, D. Mitra, M. Rheinhardt, and A. Brandenburg. Alpha effect due to buoyancy instability of a magnetic layer. *Astron. & Astrophys.*, 534, 2011.

[338] J. Warnecke, A. Brandenburg, and D. Mitra. Dynamo-driven plasmoid ejections above a spherical surface. *Astron. & Astrophys.*, 534, 2011.

[339] Mats Horsdal, Marianne Rypestol, Hans Hansson, and Jon Magne Leinaas. Charge fractionalization on quantum Hall edges. *Phys. Rev. B*, 84(11), 2011.

[340] F. Passerini and K. Zarembo. Wilson loops in N=2 super-Yang-Mills from matrix model. *J. High Energy. Phys.*, (9), 2011.

[341] T. Zingg. Thermodynamics of dyonic Lifshitz black holes. *J. High Energy. Phys.*, (9), 2011.

[342] Kjell Rosquist and Lars Samuelsson. How matter generates spatial curvature. *Int. J. Mod. Phys. D*, 20(10):1989–1994, 2011.

[343] G. Guerrero and P. J. Kapyla. Dynamo action and magnetic buoyancy in convection simulations with vertical shear. *Astron. & Astrophys.*, 533, 2011.

[344] Jan Regtmeier, Ralf Eichhorn, Martina Viefhues, Lukas Bogunovic, and Dario Anselmetti. Electrodeless dielectrophoresis for bioanalysis: Theory, devices and applications. *Electrophor.*, 32(17, 1, SI):2253–2273, 2011.

[345] N. Andersson, B. Haskell, and L. Samuelsson. Lagrangian perturbation theory for a superfluid immersed in an elastic neutron star crust. *Mon. Not. Roy. Astron. Soc.*, 416(1):118–132, 2011.

[346] Sabine Hossenfelder. Testing Super-Deterministic Hidden Variables Theories. *Found. Phys.*, 41(9):1521–1531, 2011.

[347] Asif Mushtaq, Amna Noreen, Kare Olaussen, and Ingjald Overbo. Very-high-precision solutions of a class of Schrodinger type equations. *Comp. Phys. Comm.*, 182(9, SI):1810–1813, 2011.

[348] Jens Hoppe and Maciej Trzetrzelewski. Lorentz-invariant membranes and finite matrix approximations. *Nucl. Phys. B*, 849(3):628–635, 2011.

[349] Cecilia Bejarano, Daniel O. Gomez, and Axel Brandenburg. Shear-driven instabilities in Hall-magnetohydrodynamic plasmas. *Astrophys. J.*, 737(2), 2011.

[350] Jonas Larson and Jani-Petri Martikainen. Loading of bosons in optical lattices into the p band. *Phys. Rev. A*, 84(2), 2011.

[351] Jonas Larson and Mats Horsdal. Photonic Josephson effect, phase transitions, and chaos in optomechanical systems. *Phys. Rev. A*, 84(2), 2011.

[352] Piyali Chatterjee, Dhrubaditya Mitra, Axel Brandenburg, and Matthias Rheinhardt. Spontaneous chiral symmetry breaking by hydromagnetic buoyancy. *Phys. Rev. E*, 84(2, 2), 2011.

[353] Roberto Emparan, Troels Harmark, Vasilis Niarchos, and Niels A. Obers. Blackfolds in supergravity and string theory. *J. High Energy. Phys.*, (8), 2011.

[354] Simon Candelaresi and Axel Brandenburg. Decay of helical and nonhelical magnetic knots. *Phys. Rev. E*, 84(1, 2), 2011.

[355] Ville Lahtinen. Interacting non-Abelian anyons as Majorana fermions in the honeycomb lattice model. *New J. Phys.*, 13, 2011.

[356] J. Beyer, S. Nurmi, and C. Wetterich. Coupled dark energy and dark matter from dilatation anomaly. *Phys. Rev. D*, 84(2), 2011.

[357] Raphael Plasson, Axel Brandenburg, Ludovic Jullien, and Hugues Bersini. Autocatalyses. *J. Phys. Chem. A*, 115(28):8073–8085, 2011.

[358] Sascha Zollner, G. M. Bruun, C. J. Pethick, and S. M. Reimann. Bosonic and Fermionic Dipoles on a Ring. *Phys. Rev. Lett.*, 107(3), 2011.

[359] Dmitri Sorokin, Arkady Tseytlin, Linus Wulff, and Konstantin Zarembo. Superstrings in AdS(2) x S-2 x T-6. *J. Phys. A-Mathem. Theor.*, 44(27), 2011.

[360] M. Abdel-Aty, J. Larson, H. Eleuch, and A. S. F. Obada. Multi-particle entanglement of charge qubits coupled to a nanoresonator. *Phys. E-Low-Dim. Syst. & Nanostr.*, 43(9):1625–1630, 2011.

[361] P. J. Kapyla, M. J. Mantere, G. Guerrero, A. Brandenburg, and P. Chatterjee. Reynolds stress and heat flux in spherical shell convection. *Astron. & Astrophys.*, 531, 2011.

[362] E. L. Rempel, A. C. L. Chian, and A. Brandenburg. Lagrangian coherent structures in nonlinear dynamos. *Astrophys. J. Lett.*, 735(1), 2011.

[363] Axel Brandenburg. Chandrasekhar-Kendall functions in astrophysical dynamos. *Pramana J. Phys.*, 77(1, SI):67–76, 2011.

[364] Annica M. Black-Schaffer and Jacob Linder. Magnetization dynamics and Majorana fermions in ferromagnetic Josephson junctions along the quantum spin Hall edge. *Phys. Rev. B*, 83(22), 2011.

[365] Hans Behringer and Ralf Eichhorn. Hard-wall interactions in soft matter systems: Exact numerical treatment. *Phys. Rev. E*, 83(6, 2), 2011.

[366] P. Di Vecchia, R. Marotta, I. Pesando, and F. Pezzella. Open strings in the system D5/D9. *J. Phys. A-Mathem. Theor.*, 44(24, SI), 2011.

[367] M. Hermanns, N. Regnault, B. A. Bernevig, and E. Ardonne. From irrational to nonunitary: Haffnian and Haldane-Rezayi wave functions. *Phys. Rev. B*, 83(24), 2011.

[368] Axel Brandenburg, Kandaswamy Subramanian, Andre Balogh, and Melvyn L. Goldstein. Scale dependence magnetic helicity in solar wind. *Astrophys. J.*, 734(1), 2011.

[369] Gianluca Grignani, Troels Harmark, Andrea Marini, Niels A. Obers, and Marta Orselli. Heating up the BIon. *J. High Energy. Phys.*, (6), 2011.

[370] Raphael Plasson, Axel Brandenburg, Ludovic Jullien, and Hugues Bersini. Autocatalysis: At the Root of Self-Replication. *Artif. Life*, 17(3):219–236, 2011.

[371] Ville Keranen, Esko Keski-Vakkuri, Sean Nowling, and K. P. Yogendran. Solitons as probes of the structure of holographic superfluids. *New J. Phys.*, 13, 2011.

[372] Davide Astolfi, Valentina Giangreco M. Puletti, Gianluca Grignani, Troels Harmark, and Marta Orselli. Finite-size corrections for quantum strings on AdS(4) x CP3. *J. High Energy. Phys.*, (5), 2011.

[373] B. D. Metzger, D. Giannios, T. A. Thompson, N. Bucciantini, and E. Quataert. The protomagnetar model for gamma-ray bursts. *Mon. Not. Roy. Astron. Soc.*, 413(3):2031–2056, 2011.

[374] P. J. Kapyla and M. J. Korpi. Magnetorotational instability driven dynamos at low magnetic Prandtl numbers. *Mon. Not. Roy. Astron. Soc.*, 413(2):901–907, 2011.

[375] E. Ardonne, J. Gukelberger, A. W. W. Ludwig, S. Trebst, and M. Troyer. Microscopic models of interacting Yang-Lee anyons. *New J. Phys.*, 13, 2011.

[376] N. Bucciantini and L. Del Zanna. General relativistic magnetohydrodynamics in axisymmetric dynamical spacetimes: the X-ECHO code. *Astron. & Astrophys.*, 528, 2011.

[377] F. Del Sordo and A. Brandenburg. Vorticity production through rotation, shear, and baroclinicity. *Astron. & Astrophys.*, 528, 2011.

[378] Axel Brandenburg and Ake Nordlund. Astrophysical turbulence modeling. *Rep. Prog. Phys.*, 74(4), 2011.

[379] Yasser Roudi and John Hertz. Dynamical TAP equations for non-equilibrium Ising spin glasses. *J. Stat. Mech.-Theor. Exp.*, 2011.

[380] G. Ruediger, L. L. Kitchatinov, and A. Brandenburg. Cross Helicity and Turbulent Magnetic Diffusivity in the Solar Convection Zone. *Sol. Phys.*, 269(1):3–12, 2011.

[381] D. H. Kim, J. J. Kinnunen, J. P. Martikainen, and P. Torma. Exotic Superfluid States of Lattice Fermions in Elongated Traps. *Phys. Rev. Lett.*, 106(9), 2011.

[382] Sascha Zollner, G. M. Bruun, and C. J. Pethick. Polarons and molecules in a two-dimensional Fermi gas. *Phys. Rev. A*, 83(2), 2011.

[383] Annica M. Black-Schaffer. Self-consistent superconducting proximity effect at the quantum spin Hall edge. *Phys. Rev. B*, 83(6), 2011.

[384] Prasad Perlekar, Samriddhi Sankar Ray, Dhrubaditya Mitra, and Rahul Pandit. Persistence Problem in Two-Dimensional Fluid Turbulence. *Phys. Rev. Lett.*, 106(5), 2011.

[385] D. Mitra, D. Moss, R. Tavakol, and A. Brandenburg. Alleviating alpha quenching by solar wind and meridional flows. *Astron. & Astrophys.*, 526, 2011.

[386] Yasser Roudi and John Hertz. Mean Field Theory for Nonequilibrium Network Reconstruction. *Phys. Rev. Lett.*, 106(4), 2011.

[387] Alexander Hubbard and Axel Brandenburg. Magnetic helicity flux in presence shear. *Astrophys. J.*, 727(1), 2011.

[388] Diego Chialva. Gravitational waves from first order phase transitions during inflation. *Phys. Rev. D*, 83(2), 2011.

[389] Axel Brandenburg, Nils Erland L. Haugen, and Natalia Babkovskaia. Turbulent front speed in the Fisher equation: Dependence on Damkohler number. *Phys. Rev. E*, 83(1, 2), 2011.

[390] N. Yokoi. Modeling the turbulent cross-helicity evolution: production, dissipation, and transport rates. *J. Turb.*, 12(27):1–33, 2011.

[391] P. J. Kapyla. On global solar dynamo simulations. *Astron. Nachr.*, 332(1):43–50, 2011.

[392] A. Brandenburg. Dissipation in dynamos at low and high magnetic Prandtl numbers. *Astron. Nachr.*, 332(1):51–56, 2011.

[393] P. Chatterjee, G. Guerrero, and A. Brandenburg. Magnetic helicity fluxes in interface and flux transport dynamos. *Astron. & Astrophys.*, 525, 2011.

[394] N. Babkovskaia, N. E. L. Haugen, and A. Brandenburg. A high-order public domain code for direct numerical simulations of turbulent combustion. *J. Comp.AL Phys.*, 230(1):1–12, 2011.

[395] V. Giangreco M. Puletti, S. Nowling, L. Thorlacius, and T. Zingg. Holographic metals at finite temperature. *J. High Energy. Phys.*, (1), 2011.

[396] Thordur Jonsson and Sigurdur Orn Stefansson. Condensation in Nongeneric Trees. *J. Stat. Phys.*, 142(2):277–313, 2011.

[397] N. Bucciantini, J. Arons, and E. Amato. Modelling spectral evolution of pulsar wind nebulae inside supernova remnants. *Mon. Not. Roy. Astron. Soc.*, 410(1):381–398, 2011.

[398] Mohsen Shadmehri and Bruce G. Elmegreen. Mass functions in fractal clouds: the role of cloud structure in the stellar initial mass function. *Mon. Not. Roy. Astron. Soc.*, 410(2):788–804, 2011.

[399] Kostas Glampedakis, Nils Andersson, and Lars Samuelsson. Magnetohydrodynamics of superfluid and superconducting neutron star cores. *Mon. Not. Roy. Astron. Soc.*, 410(2):805–829, 2011.

[400] Simon Candelaresi, Alexander Hubbard, Axel Brandenburg, and Dhrubaditya Mitra. Magnetic helicity transport in the advective gauge family. *Phys. Plasm.*, 18(1), 2011.

[401] Prasad Perlekar, Dhrubaditya Mitra, and Rahul Pandit. Direct numerical simulations of statistically steady, homogeneous, isotropic fluid turbulence with polymer additives. *Phys. Rev. E*, 82(6, 2), 2010.

[402] G. Guerrero, P. Chatterjee, and A. Brandenburg. Shear-driven and diffusive helicity fluxes in alpha dynamos. *Mon. Not. Roy. Astron. Soc.*, 409(4):1619–1630, 2010.

[403] Eddy Ardonne and German Sierra. Chiral correlators of the Ising conformal field theory. *J. Phys. A-Mathem. Theor.*, 43(50), 2010.

[404] Anatoly K. Nekrasov and Mohsen Shadmehri. Multicomponent theory buoyancy instabilities in astrophysical plasma objects: Case magnetic field perpendicular to Gravity. *Astrophys. J.*, 724(2):1165–1181, 2010.

[405] A. Brandenburg, P. Chatterjee, F. Del Sordo, A. Hubbard, P. J. Kapyla, and M. Rheinhardt. Turbulent transport in hydromagnetic flows. *Phys. Script.*, T142, 2010.

[406] S. G. Bhongale, Paata Kakashvili, C. J. Bolech, and H. Pu. Dissipative transport of trapped Bose-Einstein condensates through disorder. *Phys. Rev. A*, 82(5), 2010.

[407] Annica M. Black-Schaffer and Jacob Linder. Strongly anharmonic current-phase relation in ballistic graphene Josephson junctions. *Phys. Rev. B*, 82(18), 2010.

[408] J. Warnecke and A. Brandenburg. Surface appearance of dynamo-generated large-scale fields. *Astron. & Astrophys.*, 523, 2010.

[409] Giuseppe D'Appollonio, Paolo Di Vecchia, Rodolfo Russo, and Gabriele Veneziano. High-energy string-brane scattering leading eikonal and beyond. *J. High Energy. Phys.*, (11), 2010.

[410] Zhenhua Yu, Sascha Zollner, and C. J. Pethick. Comment on "Normal Phase of an Imbalanced Fermi Gas". *Phys. Rev. Lett.*, 105(18), 2010.

[411] Jonas Larson, Jani-Petri Martikainen, Anssi Collin, and Erik Sjoqvist. Spin-orbit-coupled Bose-Einstein condensate in a tilted optical lattice. *Phys. Rev. A*, 82(4), 2010.

[412] K. Hebeler, J. M. Lattimer, C. J. Pethick, and A. Schwenk. Constraints on Neutron Star Radii Based on Chiral Effective Field Theory Interactions. *Phys. Rev. Lett.*, 105(16), 2010.

[413] Ralf Eichhorn. Enantioseparation in microfluidic channels. *Chem. Phys.*, 375(2-3):568–577, 2010.

[414] A. A. Zheltukhin. Cancellation of 4-derivative terms in Volkov-Akulov action. *Phys. Rev. D*, 82(8), 2010.

[415] E. Aurell, C. Ollion, and Y. Roudi. Dynamics and performance of susceptibility propagation on synthetic data. *Eur. Phys. J. B*, 77(4):587–595, 2010.

[416] Eddy Ardonne and Joost Slingerland. Clebsch-Gordan and 6j-coefficients for rank 2 quantum groups. *J. Phys. A-Mathem. Theor.*, 43(39), 2010.

[417] Konstantin V. Krutitsky, Jonas Larson, and Maciej Lewenstein. Dark solitons near the Mott-insulator-superfluid phase transition. *Phys. Rev. A*, 82(3), 2010.

[418] K. Giesel and T. Thiemann. Algebraic quantum gravity (AQG): IV. Reduced phase space quantization of loop quantum gravity. *Class. Quant. Grav.*, 27(17), 2010.

[419] Jan Regtmeier, Ralf Eichhorn, Lukas Bogunovic, Alexandra Ros, and Dario Anselmetti. Dielectrophoretic Trapping and Polarizability of DNA: The Role of Spatial Conformation. *Analyt. Chem.*, 82(17):7141–7149, 2010.

[420] M. Rheinhardt and A. Brandenburg. Test-field method for mean-field coefficients with MHD background. *Astron. & Astrophys.*, 520, 2010.

[421] Jonas Larson. Travelling to exotic places with cavity QED systems. *Phys. Script.*, T140, 2010.

[422] Annica M. Black-Schaffer. Importance of electron-electron interactions in the RKKY coupling in graphene. *Phys. Rev. B*, 82(7), 2010.

[423] David Speer, Ralf Eichhorn, and Peter Reimann. Exploiting Lattice Potentials for Sorting Chiral Particles. *Phys. Rev. Lett.*, 105(9), 2010.

[424] Mohsen Shadmehri and Perikles Rammos. Kelvin-Helmholtz instability at the interface of a disc-corona system. *Mon. Not. Roy. Astron. Soc.*, 406(4):2627–2632, 2010.

[425] Petri J. Kapyla, Axel Brandenburg, Maarit J. Korpi, Jan E. Snellman, and Ramesh Narayan. Angular momentum transport in convectively unstable shear flows. *Astrophys. J.*, 719(1):67–76, 2010.

[426] I. N. Kitiashvili, A. G. Kosovichev, A. A. Wray, and N. N. Mansour. Mechanism spontaneous formatistable magnetic structures the Sun. *Astrophys. J.*, 719(1):307–312, 2010.

[427] Dhrubaditya Mitra, Reza Tavakol, Petri J. Kapyla, and Axel Brandenburg. Oscillatory migrating magnetic fields in helical turbulence in spherical domains. *Astrophys. J. Lett.*, 719(1):L1–L4, 2010.

[428] E. J. Brynjolfsson, U. H. Danielsson, L. Thorlacius, and T. Zingg. Black hole thermodynamics and heavy fermion metals. *J. High Energy. Phys.*, (8), 2010.

[429] Jacob Linder, Annica M. Black-Schaffer, and Asle Sudbo. Triplet proximity effect and odd-frequency pairing in graphene. *Phys. Rev. B*, 82(4), 2010.

[430] M. Chaichian, A. Tureanu, and A. A. Zheltukhin. Massless chiral supermultiplets of higher spins and the theta-twistor. *Phys. Rev. D*, 82(2), 2010.

[431] Ralf Eichhorn. Microfluidic Sorting of Stereoisomers. *Phys. Rev. Lett.*, 105(3), 2010.

[432] Eniko J. M. Madarassy and Axel Brandenburg. Calibrating passive scalar transport in shear-flow turbulence. *Phys. Rev. E*, 82(1, 2), 2010.

[433] Gregoire Danger, Raphael Plasson, and Robert Pascal. An Experimental Investigation of the Evolution of Chirality in a Potential Dynamic Peptide System: N-Terminal Epimerization and Degradation into Diketopiperazine. *Astrobiol.*, 10(6):651–662, 2010.

[434] P. J. Kapyla, M. J. Korpi, and A. Brandenburg. Open and closed boundaries in large-scale convective dynamos. *Astron. & Astrophys.*, 518, 2010.

[435] I. N. Kitiashvili, L. R. Bellot Rubio, A. G. Kosovichev, N. N. Mansour, A. Sainz Dalda, and A. A. Wray. Explanatisea-serpent magnetic structure sunspot penumbrae. *Astrophys. J. Lett.*, 716(2):L181–L184, 2010.

[436] C. D. Ott, C. J. Pethick, and L. Rezzolla. Microphysics in Computational Relativistic Astrophysics-MICRA2009, Niels Bohr International Academy, Copenhagen, 24-28 August 2009. *Class. Quant. Grav.*, 27(11), 2010.

[437] Jurjen F. Koksma, Tomislav Prokopec, and Michael G. Schmidt. Entropy and correlators in quantum field theory. *Ann. Phys.*, 325(6):1277–1303, 2010.

[438] Gianluca Grignani, Troels Harmark, Andrea Marini, and Marta Orselli. New Penrose limits and AdS/CFT. *J. High Energy. Phys.*, (6), 2010.

[439] A. A. Zheltukhin and M. Trzetrzelewski. U(1)-invariant membranes: The geometric formulation, Abel, and pendulum differential equations. *J. Mathem. Phys.*, 51(6), 2010.

[440] Kristina Giesel, Johannes Tambornino, and Thomas Thiemann. LTB spacetimes in terms of Dirac observables. *Class. Quant. Grav.*, 27(10), 2010.

[441] Annica M. Black-Schaffer. RKKY coupling in graphene. *Phys. Rev. B*, 81(20), 2010.

[442] Jay Armas and Troels Harmark. Uniqueness theorem for black hole space-times with multiple disconnected horizons. *J. High Energy. Phys.*, (5), 2010.

[443] Jonas Larson. Analog of the spin-orbit-induced anomalous Hall effect with quantized radiation. *Phys. Rev. A*, 81(5), 2010.

[444] Sabine Hossenfelder. Bounds on an Energy-Dependent and Observer-Independent Speed of Light from Violations of Locality. *Phys. Rev. Lett.*, 104(14), 2010.

[445] A. A. Zheltukhin. Dmitrij Volkov, super-Poincare group and Grassmann variables. *Annal. Phys.*, 19(3-5):177–185, 2010.

[446] J. Pelt, M. J. Korpi, and I. Tuominen. Solar active regions: a nonparametric statistical analysis. *Astron. & Astrophys.*, 513, 2010.

[447] Davide Astolfi, Valentina Giangreco M. Puletti, Gianluca Grignani, Troels Harmark, and Marta Orselli. Full Lagrangian and Hamiltonian for quantum strings on AdS(4) x CP3 in a near plane wave limit. *J. High Energy. Phys.*, (4), 2010.

[448] Roberto Emparan, Troels Harmark, Vasilis Niarchos, and Niels A. Obers. New horizons for black holes and branes. *J. High Energy. Phys.*, (4), 2010.

[449] Sonia Fernandez-Vidal, Gabriele De Chiara, Jonas Larson, and Giovanna Morigi. Quantum ground state of self-organized atomic crystals in optical resonators. *Phys. Rev. A*, 81(4), 2010.

[450] Fernando Ruiperez and Ulf Wahlgren. Charge Transfer in Uranyl(VI) Halides [UO2X4](2-) (X = F, Cl, Br, and I). A Quantum Chemical Study of the Absorption Spectra. *J. Phys. Chem. A*, 114(10):3615–3621, 2010.

[451] S. Hossenfelder and L. Smolin. Conservative solutions to the black hole information problem. *Phys. Rev. D*, 81(6), 2010.

[452] K. Giesel, S. Hofmann, T. Thiemann, and O. Winkler. Manifestly gauge-invariant general relativistic perturbation theory: II. FRW background and first order. *Class. Quant. Grav.*, 27(5), 2010.

[453] K. Giesel, S. Hofmann, T. Thiemann, and O. Winkler. Manifestly gauge-invariant general relativistic perturbation theory: I. Foundations. *Class. Quant. Grav.*, 27(5), 2010.

[454] Roberto Emparan, Troels Harmark, Vasilis Niarchos, and Niels A. Obers. Essentials of blackfold dynamics. *J. High Energy. Phys.*, (3), 2010.

[455] P. J. Kapyla, M. J. Korpi, and A. Brandenburg. The alpha effect in rotating convection with sinusoidal shear. *Mon. Not. Roy. Astron. Soc.*, 402(3):1458–1466, 2010.

[456] G. M. Bruun, C. J. Pethick, and Zhenhua Yu. Clock shifts in a Fermi gas interacting with a minority component: A soluble model. *Phys. Rev. A*, 81(3), 2010.

[457] Fabio Del Sordo, Simon Candelaresi, and Axel Brandenburg. Magnetic-field decay of three interlocked flux rings with zero linking number. *Phys. Rev. E*, 81(3, 2), 2010.

[458] Sabine Hossenfelder, Leonardo Modesto, and Isabeau Premont-Schwarz. Model for nonsingular black hole collapse and evaporation. *Phys. Rev. D*, 81(4), 2010.

[459] E. J. Brynjolfsson, U. H. Danielsson, L. Thorlacius, and T. Zingg. Holographic superconductors with Lifshitz scaling. *J. Phys. A-Mathem. Theor.*, 43(6), 2010.

[460] Serguei S. Komissarov and Maxim V. Barkov. Supercollapsars and their X-ray bursts. *Mon. Not. Roy. Astron. Soc.*, 402(1):L25–L29, 2010.

[461] Lars Samuelsson, C. S. Lopez-Monsalvo, N. Andersson, and G. L. Comer. Relativistic two-stream instability. *Gen. Rel. Grav.*, 42(2):413–433, 2010.

[462] John Hertz. Cross-Correlations in High-Conductance States of a Model Cortical Network. *Neur. Comp.*, 22(2):427–447, 2010.

[463] Raphael Plasson and Axel Brandenburg. Homochirality and the Need for Energy. *Orig. Life Evol. Biosph.*, 40(1):93–110, 2010.

[464] A. Collin, J. Larson, and J. P. Martikainen. Quantum states of p-band bosons in optical lattices. *Phys. Rev. A*, 81(2), 2010.

[465] Zhenhua Yu and C. J. Pethick. Clock Shifts of Optical Transitions in Ultracold Atomic Gases. *Phys. Rev. Lett.*, 104(1), 2010.

[466] Valentina Giangreco Marotta Puletti. On String Integrability: A Journey through the Two-Dimensional Hidden Symmetries in the AdS/CFT Dualities. *Adv. High Energy Phys.*, 2010.

[467] A. Brandenburg, N. Kleeorin, and I. Rogachevskii. Large-scale magnetic flux concentrations from turbulent stresses. *Astron. Nachr.*, 331(1):5–13, 2010.

[468] K. H. Raedler and A. Brandenburg. Mean electromotive force proportional to mean flow in MHD turbulence. *Astron. Nachr.*, 331(1):14–21, 2010.

[469] M. J. Korpi, P. J. Kapyla, and M. S. Vaisala. Influence of Ohmic diffusion on the excitation and dynamics of MRI. *Astron. Nachr.*, 331(1):34–45, 2010.

[470] P. J. Kapyla, M. J. Korpi, A. Brandenburg, D. Mitra, and R. Tavakol. Convective dynamos in spherical wedge geometry. *Astron. Nachr.*, 331(1):73–81, 2010.

[471] D. Mitra, S. Candelaresi, P. Chatterjee, R. Tavakol, and A. Brandenburg. Equatorial magnetic helicity flux in simulations with different gauges. *Astron. Nachr.*, 331(1):130–135, 2010.

[472] Matthieu Emond, Thomas Le Saux, Sylvie Maurin, Jean-Bernard Baudin, Raphael Plasson, and Ludovic Jullien. 2-Hydroxyazobenzenes to Tailor pH Pulses and Oscillations with Light. *Chem.-A Eur. J.*, 16(29):8822–8831, 2010.

[473] Alexander Hubbard and Axel Brandenburg. Magnetic helicity fluxes in an alpha(2) dynamo embedded in a halo. *Geophys. Astrophys. Fluid Dynam.*, 104(5-6, SI):577–590, 2010.

[474] Piyali Chatterjee, Axel Brandenburg, and Gustavo Guerrero. Can catastrophic quenching be alleviated by separating shear and alpha effect? *Geophys. Astrophys. Fluid Dynam.*, 104(5-6, SI):591–599, 2010.

[475] Axel Brandenburg. Magnetic field evolution in simulations with Euler potentials. *Mon. Not. Roy. Astron. Soc.*, 401(1):347–354, 2010.

[476] Cecile Danilo, Valerie Vallet, Jean-Pierre Flament, and Ulf Wahlgren. Effects of the first hydration sphere and the bulk solvent on the spectra of the f(2) isoelectronic actinide compounds: U4+, NpO2+, and PuO22+. *Phys. Chem. Chem. Phys.*, 12(5):1116–1130, 2010.

[477] Anssi Collin, Jani-Petri Martikainen, and Jonas Larson. Dynamical quantum phase transition of a two-component Bose-Einstein condensate in an optical lattice. *Phys. Rev. A*, 81(1), 2010.

[478] Annica M. Black-Schaffer and Sebastian Doniach. Possibility of measuring intrinsic electronic correlations in graphene using a d-wave contact Josephson junction. *Phys. Rev. B*, 81(1), 2010.

[479] C. J. Pethick, N. Chamel, and Sanjay Reddy. Superfluid Dynamics in Neutron Star Crusts. *Prog. Theor. Phys. Supp.*, (186):9–16, 2010.

[480] Ralf Eichhorn, Jan Regtmeier, Dario Anselmetti, and Peter Reimann. Negative mobility and sorting of colloidal particles. *Soft Matt.*, 6(9):1858–1862, 2010.

[481] T. Ahmed, J. T. Haraldsen, J. J. Rehr, M. Di Ventra, I. Schuller, and A. V. Balatsky. Correlation dynamics and enhanced signals for the identification of serial biomolecules and DNA bases. *Nanotechnology*, 25(12):125705, March 2014.

[482] Sabine Hossenfelder. Testing superdeterministic conspiracy. In *EMQM13: Emergent Quant. Mech. 2013*, volume 504 of *J. Phys. Conf. Ser.*, 2014.

[483] C. A. van Eysden. Coupled post-glitch response of the crust and interior of neutron stars. In *2nd Int. Symp. Mod. Phys. Compact Stars and Rel. Grav.*, volume 496 of *J. Phys. Conf. Ser.*, 2014.

[484] Axel Brandenburg and Gustavo Guerrero. Cycles and cycle modulations. In Mandrini, CH and Webb, DF, editor, *Comparative magnetic minima: characterizing quiet times in sun and stars*, volume 286 of *IAU Symp. Proc. Ser.*, pages 37–48, 2012.

[485] Simon Candelaresi and Axel Brandenburg. Magnetic helicity fluxes and their effect on stellar dynamos. In Mandrini, CH and Webb, DF, editor, *Comparative magnetic minima: characterizing quiet times in Sun and stars*, volume 286 of *IAU Symp. Proc. Ser.*, pages 49–53, 2012.

[486] Fabio Del Sordo, Alfio Bonanno, Axel Brandenburg, and Dhrubaditya Mitra. Spontaneous chiral symmetry breaking in the Tayler instability. In Mandrini, CH and Webb, DF, editor, *Comparative magnetic minima: characterizing quiet times in sun and stars*, volume 286 of *IAU Symp. Proc. Ser.*, pages 65–69, 2012.

[487] J. Warnecke, P. J. Kapyla, M. J. Mantere, and A. Brandenburg. Coronal ejections from convective spherical shell dynamos. In Mandrini, CH and Webb, DF, editor, *Comparative magnetic minima: characterizing quiet times in Sun and stars*, volume 286 of *IAU Symp. Proc. Ser.*, pages 154–158, 2012.

[488] Axel Brandenburg. Simulations of astrophysical dynamos. In Bonanno, A and DalPino, ED and Kosovichev, AG, editor, *Adv. Plasma Astrophys.*, number 274 in IAU Symp. Proc. Ser., pages 402–409, 2011.

[489] Simon Candelaresi and Axel Brandenburg. Magnetic helicity fluxes in alpha Omega dynamos. In Bonanno, A and DalPino, ED and Kosovichev, AG, editor, *Adv. Plasm. Astrophys.*, number 274 in IAU Symp. Proc. Ser., pages 464–466, 2011.

[490] Piyali Chatterjee. What do global p-modes tell us about banana cells? In Appourchaux, T, editor, *GONG-Soho 24: A new era seismology sun solar-like stars*, volume 271 of *J. Phys. Conf. Ser.*, 2011.

[491] Jorn Warnecke, Axel Brandenburg, and Dhrubaditya Mitra. Plasmoid ejections driven by dynamo action underneath a spherical surface. In Bonanno, A and DalPino, ED and Kosovichev, AG, editor, *Adv. Plasm. Astrophys.*, number 274 in IAU Symp. Proc. Ser., pages 306–309, 2011.

[492] Fabio Del Sordo and Axel Brandenburg. How can vorticity be produced in irrotationally forced flows? In Bonanno, A and DalPino, ED and Kosovichev, AG, editor, *Adv. Plasm. Astrophys.*, number 274 in IAU Symp. Proc. Ser., pages 373–375, 2011.

[493] Simon Candelaresi, Fabio Del Sordo, and Axel Brandenburg. Decay of trefoil and other magnetic knots. In Bonanno, A and DalPino, ED and Kosovichev, AG, editor, *Adv. Plasm. Astrophys.*, number 274 in IAU Symp. Proc. Ser., pages 461–463, 2011.

[494] K. Kemel, A. Brandenburg, N. Kleeorin, and I. Rogachevskii. Turbulent magnetic pressure instability in stratified turbulence. In Bonanno, A and DalPino, ED and Kosovichev, AG, editor, *Adv. Plasm. Astrophys.*, number 274 in IAU Symp. Proc. Ser., pages 473–475, 2011.

[495] Axel Brandenburg, Petri J. Kapyla, and Maarit J. Korpi. From convective to stellar dynamos. In Brummell, NH and Brun, AS and Miesch, MS and Ponty, Y, editor, *Astrophys. Dynam.: From Stars to galaxies*, volume 271 of *IAU Symp. Proc. Ser.*, pages 279–287, 2011.

[496] Simon Candelaresi, Fabio Del Sordo, and Axel Brandenburg. Influence of Magnetic Helicity in MHD. In Brummell, NH and Brun, AS and Miesch, MS and Ponty, Y, editor, *Astrophys. Dynam.: From Stars to galaxies*, volume 271 of *IAU Symp. Proc. Ser.*, pages 369–370, 2011.

[497] Fabio Del Sordo and Axel Brandenburg. Vorticity from irrotationally forced flow. In Brummell, NH and Brun, AS and Miesch, MS and Ponty, Y, editor, *Astrophys. Dynam.: From Stars to galaxies*, volume 271 of *IAU Symp. Proc. Ser.*, pages 375–376, 2011.

[498] Jorn Warnecke and Axel Brandenburg. Recurrent flux emergence from dynamo-generated fields. In Brummell, NH and Brun, AS and Miesch, MS and Ponty, Y, editor, *Astrophys. Dynam.: From Stars to galaxies*, volume 271 of *IAU Symp. Proc. Ser.*, pages 407–408, 2011.

[499] K. Kemel, A. Brandenburg, N. Kleeorin, and I. Rogachevskii. The negative magnetic pressure effect in stratified turbulence. In Choudhary, DP and Strassmeier, KG, editor, *Phys. Sun star spots*, volume 273 of *IAU Symp. Proc. Ser.*, pages 83–88, 2011.

[500] Jorn Warnecke and Axel Brandenburg. Dynamo generated field emergence through recurrent plasmoid ejections. In Choudhary, DP and Strassmeier, KG, editor, *Phys. Sun star spots*, volume 273 of *IAU Symp. Proc. Ser.*, pages 256–260, 2011.

[501] Piyali Chatterjee, Sagar Chakraborty, and Arnab Rai Choudhuri. A theoretical model of torsional oscillations from a flux transport dynamo model. In Choudhary, DP and Strassmeier, KG, editor, *Phys. Sun star spots*, volume 273 of *IAU Symp. Proc. Ser.*, pages 366–368, 2011.

[502] Diego Chialva. Cosmological effects of multivacua theories: gravitational waves from first order transitions during inflation. In Cabrera, S and Hirsch, M and Mitsou, V and Munoz, C and Pastor, S and Tortola, MA and Valle, JWF and Vives, O, editor, *16th. Int. Symp. Part., Strings Cosm. (PASCOS 2010)*, volume 259 of *Journal Phys. Conf. Ser.*, 2010.

[503] Axel Brandenburg and Fabio Del Sordo. Turbulent diffusion and galactic magnetism. In Corbett, IF, editor, *Highl. Astron., Vol. 15*, volume 15 of *IAU Symp. Proc. Ser.*, pages 432–433, 2010.

[504] A. Brandenburg. Non-linear and chaotic dynamo regimes. In A. G. Kosovichev, E. de Gouveia Dal Pino, and Y. Yan, editors, *IAU Symposium*, volume 294 of *IAU Symposium*, pages 387–398, July 2013.

[505] D. Mitra, R. Tavakol, A. Brandenburg, and P. J. Käpylä. Oscillatory migratory large-scale fields in mean-field and direct simulations. In A. G. Kosovichev, A. H. Andrei, and J.-P. Rozelot, editors, *IAU Symposium*, volume 264 of *IAU Symposium*, pages 197–201, February 2010.

[506] M. Cantiello, J. Braithwaite, A. Brandenburg, F. Del Sordo, P. Käpylä, and N. Langer. Turbulence and magnetic spots at the surface of hot massive stars. In D. Prasad Choudhary and K. G. Strassmeier, editors, *IAU Symposium*, volume 273 of *IAU Symposium*, pages 200–203, August 2011.

[507] M. Cantiello, J. Braithwaite, A. Brandenburg, F. Del Sordo, P. Käpylä, and N. Langer. 3D MHD simulations of subsurface convection in OB stars. In C. Neiner, G. Wade, G. Meynet, and G. Peters, editors, *IAU Symposium*, volume 272 of *IAU Symposium*, pages 32–37, July 2011.

[508] T. A. Thompson, B. D. Metzger, and N. Bucciantini. Proto-Magnetars as GRB Central Engines: Uncertainties, Limitations. In N. Kawai and S. Nagataki, editors, *American Institute of Physics Conference Series*, volume 1279 of *American Institute of Physics Conference Series*, pages 81–88, October 2010.

[509] N. Bucciantini. MHD models of Pulsar Wind Nebulae. In D. F. Torres and N. Rea, editors, *High-Energy Emission from Pulsars and their Systems*, page 473, 2011.

E. Weekly events organized or co-organized by Nordita

Table 50: Overview of Seminars and colloquia organized or co-organized by Nordita

Weekday	time	name of event
Mondays	13.15	The OKC/Nordita High-Energy Physics Theory Seminar
Tuesdays	11.00	The SU/Nordita Condensed Matter Seminar
	13.15	The OKC Seminar
	13.30	Complex Systems and Biological Physics Seminar
Wednesdays	11.00	The KTH/Nordita/SU Seminar in Theoretical Physics
	13.30	Nordita Astrophysics seminars
	14.30	The SMC Mathematics Colloquium
Thursdays	12.00	Astro-ph Luncheon
	15.15	The AlbaNova/Nordita Colloquium
Fridays	16:00	The Nordita Seminar

Nordita: Today and Tomorrow

Nordita, the Nordic Institute of Theoretical Physics plays a special role for physicists in the Nordic countries.

The institute serves as a connecting hub both between researchers in the Nordic countries and with the global community. In its role as a communication interface for ideas, Nordita brings together scientists from diverse backgrounds to pursue research in ways that are difficult at the scientists' home institutions, thereby tapping upon creative potential that would otherwise remain unused.

Complementing this community service, the intellectual identity of the institute is shaped by all its scientists, not just its staff but also visitors and alumni as well as past and present members of various scientific committees, many of whom are in leading positions in the Nordic countries.

A key ingredient to Nordita's function as a connecting hub is to host a broad range of one-month long international programs. Often, the subject area of a program extends beyond the core areas of physics. These programs give participants the time and space to not only present but actively develop new ideas, frequently together with local researchers. Nordita belongs to a globally small group of institutes that host such program activities and is in this unique within the Nordic countries.

Furthermore, in contrast to many other institutions, Nordita hires postdocs into independent research positions that are not tied to projects or supervisors. This serves to diversify the research fields covered at the institute and ensures that, despite a relatively small number of faculty members, a large variety of topics are pursued. The in-house research is of the highest quality, evidenced for example by the number of prestigious grants awarded to Nordita's faculty and quantifiable measures for scientific output and impact.

Nordita's mission

Nordita's mission is to disseminate new research in physics and related areas in the Nordic countries, as well as to stimulate Nordic research and make it more visible to the international community.

Two of the important factors that make this mission important are the following.

First, progress in fundamental physics, and related sciences where mathematical modelling is used, is crucial for sustainable progress of science and technology. Basic research in theoretical physics leads to serendipitous discovery that improves human life. Nordita's scientists contribute to this progress with continuous consideration of new areas, also outside traditional physics, where methodology derived from theoretical physics can be fruitfully applied.

Second, as regularly reported in international evaluations, the intellectual mobility of scientists in the Nordic countries is often limited by cultural and societal restrictions

and traditions. This limited mobility hinders the flux of ideas, which is alleviated by Nordita as an inspiring meeting place. In this capacity, the institute keep Nordic research internationally competitive by reducing the risk of inbreeding in local Nordic environments.

The institute's mission reflects in its activities that fall into six areas. Besides the research itself, the institute strives to fulfil its mission for the Nordic countries by putting an emphasis on interdisciplinarity, networking, public outreach and the training of young researchers. This mission requires research independence and thus securing long-term funding, which we will discuss as a separate goal.

These areas are best pursued together to exploit the synergy between them. However, priorities have to be set to manage limited resources. The goals are listed in the following section, together with a brief summary of the current status and an outline of means to achieve these goals that explicitly lists differential changes that the institute will implement.

Strategic goals for Nordita

Maintaining high research quality has been and will remain the institute's primary goal. The institute has traditionally focused on basic research rather than its applications, consistent with the long-term vision of sustainable technological progress. While connections to applications are desirable and encouraged, the emphasis of Nordita's research will remain on expanding the foundations of our knowledge. Research is naturally strongly related to education, but in the spectrum that spans from teaching to research, Nordita is positioned towards the end of research.

Research Excellence

- **Goal.** Nordita will maintain its international standing and impact through vigorous research programs at the forefront of physics. The institute will advance theoretical physics by taking on difficult open problems that will impact physics in the long run.

- **Current Status.** The long-term impact of research findings is difficult if not impossible to measure, but the research output can be quantified through the papers published each year (over 100/year), the grants (3 ERC Advanced Grants, 1 Wallenberg Grant, $\approx$ 6 VR grants), the number of various prizes awarded to Nordita staff, the number of applicants for post-doc positions ($\approx$ 400 for all areas) and assistant professorships (40–100, depending on the area). The institute achieves highly in all these areas.

  Nordita's Scientific Advisory Committee suggests the fields in which future hirings are to be made. The current director conducts annual performance reviews.

  Post-docs have traditionally been hired on 2 years fellowships to cap annual expenses. Current advertisements are for joint postdocs with NBI in Copenhagen, for a total of four years (2 at Nordita and 2 at NBI). Joint postdoc hiring with other Nordic countries is encouraged as well. Joint hirings of tenured assistant professors with one of the cooperating universities (KTH, SU, and UU) is currently being done in two cases (UU).

  Nordita's faculty presently counts 17, including visitors and emeriti, 3 of which are permanent staff. Next to the faculty, the research body comprises 25 post-docs

(including visiting postdocs), 6 other visitors and 8 students.

Current Nordita activities include: 6-8 one-month Programs/year; 20 conferences/year at Nordita or in the Nordic region; and 4 schools per year. Regarding the one-month scientific Programs, Nordita is one of the few in the world (others include the Kavli Institute for Theoretical Physics in Santa Barbara, which was originally modelled after Nordita; their programs are typically 4-6 months in extent). Nordita's Programs provide a service to the world and of particular importance to Nordic countries.

- **Means to achieve goal.** Nordita will maintain an internationally recognized senior staff as a key to attract high-level researchers into junior positions, long-term visits and scientific meetings.

  Nordita will continue its post-doc program for independent and not-project-bound research positions in addition to project-supported post-docs and PhD students funded by individual grants.

  The academic staff will be expected to pursue and publish original and influential research and to participate in a variety of activities engaging the wider physics community in and beyond the Nordic region.

  Ideally, Nordita should have at least 5 permanent professors who will be hired in accordance with recommendations by the Scientific Advisory Committee with the highest possible academic standard as an overarching goal.

  The Nordita director will continue to conduct annual performance reviews and interviews with each member of the staff and evaluate the achievement of personal and institutional goals.

  Additional funds for 3-year post-doc positions should be sought and the possibility of giving tenure to highly performing assistant professors with one of the host universities should be investigated.

  Since gender bias can result in neglect of highly qualified candidates, Nordita will advise members of selection committees to consciously avoid bias and will strive to increase the female-to-male ratio, especially among the faculty. Organizers of scientific programs will be encouraged to have female co-organizers and participants.

Interdisciplinarity

- **Goal.** Nordita will develop its long-term focus on interdisciplinary programs and contribute to research in theoretical problems across a wide spectrum, beyond the traditional boundaries of theoretical physics.

- **Current Status.** The director advises the hiring committees and staff to recognize the importance of applicants and visitors with broad backgrounds. Several programs have been interdisciplinary and the program selection committee is instructed to pay attention to covering diverse topics. The level of interdisciplinary research is reflected in the number of joint proposals, publications, and talks that attract the attention of multiple communities.

- **Means to achieve goal.** Nordita will actively engage in the development of mathematically based theory in other natural sciences and expand the research covered by the in-house research staff by bringing in external experts.

  The Scientific Advisory Committee will be engaged in identifying new areas for hiring staff. The Board appoints hiring committees able to identify and attract the best people.

  The institute will continue its various supplemental activities, in particular the month-long programs, and expand the target group of potential program organizers, e.g. by producing and distributing flyers.

  A key problem with interdisciplinary meetings is that researchers in separate disciplines do not stay in touch and do not pursue mutual interests once they have returned to their home institution. The institute will develop ways for them to stay in touch by supplementing meetings with an online presence.

  Proposals for rapid response programs will be invited that enable meetings to be organized on short notice to address recent developments.

Training and Mentoring

- **Goal.** To produce experienced and highly qualified scientists who secure leading academic or corporate positions.

- **Current Status.**

  Post-docs and assistant professors are exposed to a vibrant academic environment that can help them gain experience in teaching advanced courses and supervising PhD and Master students. They are encouraged to organize workshops with support by experienced staff. A session on media training was conducted in 2013 and was well attended.

- **Means to achieve goal.** Encourage senior staff to mentor junior faculty, keep organizing regular Winter Schools and occasional Summer Schools, enable participation by providing travel support for students and participation in workshops and programs, and maintain or enhance the visiting PhD student program.

  The success rate of training scientists will be monitored.

  To increase the reach of Nordita's training of young researchers, recording and life-streaming of seminars should be improved. The presently existing audio/video equipment is not of very high quality and new hardware is necessary, as well as trained personnel to record and upload the videos.

Networking and Mobility

- **Goal.** Nordita will support and improve the cooperation and idea transfer between theoretical physicists in the Nordic countries and between the Nordic researchers and the global community to stimulate mobility.

- **Current Status.** Several members of the Nordita faculty co-supervise PhD students with staff from the relevant departments at Stockholm University (SU), the Royal

Institute of Technology (KTH), and Uppsala University (UU). Nordic PhD students spend time at Nordita and interact with local staff. Visiting PhD fellowships are open to application bi-annually. The institute organizes a large number of scientific meetings spanning programs, networks, workshops, and symposia, and has a visiting scientist program. Nordita's Nordic Research Committees and Board provide feedback and spend time at the institute. However, the awareness of Nordita should be improved, particularly in the Nordic countries.

- **Means to achieve goal.** The number of scientific meetings presently organized is optimal. Success of these scientific meetings will be evaluated by feedback questionnaires.

  Nordita staff will be encouraged to give seminars at Nordic institutions. Nordita staff will continue to seek external funding for both short and long term visitors. Nordita will maintain contacts through various means, for example the Corresponding Fellowship program, that allows scientists to spend time at the institute and use it for organizing workshop activities. The Board and the Scientific Advisory Committee will be encouraged to spread word about the institute and its visiting and meeting opportunities.

  The in-house communication and cooperation both within and between different groups should be developed and the opportunity of interaction with program participants should be maximized.

  Financial support for meetings will be applied for at various national institutions. Potential organizers of meetings, especially when new to the country, will be informed of institutions they can apply to and the relevant deadlines.

  Recording and life-streaming of seminars will also be conductive to this item.

Publicity of Nordic Research Excellence and Public Outreach

- **Goal.** To draw worldwide attention to the excellence of research performed in Nordic countries. To increase the public awareness of the role of science and to inspire young people to contribute to the advancement of our societies. To stimulate and teach Nordita researchers to efficiently communicate with the public. To create and maintain contacts to the local and international media.

- **Current Status.** Public outreach is presently done with little administrative support on an occasional and voluntary basis by researchers. This currently includes the quarterly Nordita Newsletter; several videos about research, researchers, and the mission of the institute; the distribution and regular update of the Nordita information brochure; participation in social media such as Facebook, Twitter and LinkedIn; Open House and participation in public science fairs. The quality and quantity of such activities is modest.

- **Means to achieve goal.** Financial support and suitable candidates for a public outreach coordinator will be sought. Nordita will develop the collaboration with SU and KTH on such activities.

  Posters listing upcoming Nordita Programs, conferences, and schools are being sent to physics departments, institutes, and individuals worldwide. Such posters can be

displayed on bulletin boards to increase awareness of Nordic research activities hosted at Nordita. The newsletter describing research achievements at Nordita and in Nordic countries can be broadly distributed via email.

Independence

- **Goal.** To maintain scientific independence, and to allow senior researchers and postdocs to pursue original and long-term research targets, the institute must secure continued base funding and expand its funding sources.

- **Current Status.** Key to the success of Nordita is its independence from its host universities, with all decisions being made by the Board and the staff with the advice of a variety of selected committees, rather than by the universities themselves. The host universities continue to support the infrastructure, e.g. of the buildings as well as additional financial support, yet they exert no control over activities.

  While project money has been increasing, base funding support has become more difficult to maintain. Individual faculty have been extremely successful in obtaining grant support; yet this type of funding is limited in scope to the particular topic of the proposal, and does not allow the wide scope of activities at Nordita. Interdisciplinary efforts are typically not covered by these grants; scientific programs in the wide variety of fields currently supported are not part of these grants; nor do project funded postdocs have the freedom to work on areas of their choosing. The support for hiring postdocs, assistant professors, and senior faculty, as well as for programs has been from the Nordic Council of Ministers (declining support), the host universities SU and KTH, and the Swedish Research Council (slowly increasing support). No private sources on income exist at present.

- **Means to achieve goal.** The Nordita director will work towards raising funding for the institute. She will engage in discussions with Nordforsk and the Swedish Research Council. She will maintain close interaction with the Nordita Leadership Group. She will work together with fund-raising personnel at the host universities.

  The possibility exists of hiring someone to work on fundraising; perhaps this person would have the dual responsibility of fundraising and public outreach.

  There will be a continued effort in Nordita staff to successfully secure project funding. The Board will take part in fundraising initiatives in their home countries.

  Increased efforts in public outreach are needed to make the institute, its research and service to the community more widely known.

  Communication with the national funding agencies of the Nordic countries will be initiated with the goal of allowing Nordita personnel to apply for funding in all Nordic countries and not just the country in which the institute is presently physically located. National researchers not employed at Nordita should be able to add a contribution to their project budget that supports Nordita as infrastructure relevant to their research.

  The communication with the national funding agencies will be initiated by the Director together with members of the Board.

To benefit the acquisition of individual research grants, funding sources and grant deadlines should be collected and distributed regularly by administrative staff.

By realizing these strategic goals, Nordita will secure and further strengthen its position as a leading research institution and an important provider of services to the scientific community in the Nordic countries and beyond.

Stockholm, November 18, 2014

This document was last edited by Katherine Freese. Parts of the text have been inherited from similar documents written by former directors and deputy directors (Risto Nieminen, Ulf Wahlgren, Larus Thorlacius). In the Spring of 2014, Nordita faculty was jointly involved in significant revisions (Axel Brandenburg, Bengt Gustafsson, Sabine Hossenfelder, Asle Sudbø).

H. Annual Reports 2010–2014

- Nordita Operations 2010 (9 pages)
- Nordita Operations 2011 (9 pages)
- Nordita Operations 2012 (9 pages)
- Nordita Operations 2013 (9 pages)
- Nordita Operations 2014 (9 pages)

Nordita Operations 2010

Preamble

Nordita is hosted by Stockholm University (SU) and the Royal Institute of Technology (KTH) at the AlbaNova University Centre in Stockholm, which also houses a major part of the activities in the physical sciences of the two universities. The institute has been successfully re-established in Stockholm, following the move from Copenhagen in 2007, and is by now operating at close to full capacity as envisaged in the contract between NMR and the host universities. Nordita maintains a presence in Copenhagen but during 2010 two of three Nordita professors in Copenhagen reached retirement age.

Research and related activities

The centrepiece of scientific activities at Nordita is the in-house research program carried out by its resident academic staff. At present astrophysics, astrobiology, cosmology, biological physics, condensed matter physics, mathematical physics, statistical physics/complex systems and high energy physics are represented to varying extent at Nordita (including activities in Copenhagen). Nordita has close ties with faculty and research staff at the local universities in Stockholm and Copenhagen and at other Nordic universities. This includes collaboration on research projects, co-supervising graduate students, organizing joint seminars and colloquia, and more. The in-house research is supplemented by several more outward directed activities: *scientific programs, workshops and symposia, and a visiting scientist program.*
In a *scientific program*, a group of experts within a particular area of research comes together to work on specific research problems for a period of one to two months. The international scientific community is invited to suggest programs in theoretical physics and related areas. Program proposals are reviewed by an external Program Committee and decided by the Nordita Board.
Workshops and symposia are another important part of Nordita's scientific activities. They are organized throughout the year, often in connection with an ongoing scientific program, but also as stand-alone events. The workshops are organized and run by Nordita alone or jointly together with other research institutes or universities.
The *visiting scientist program* provides for short term visits by both junior and senior researchers. The visitor program also enables longer term visits by scientists who are collaborating with Nordita staff and by senior scientists on sabbatical leave from their home institutions. The program is essential for promoting and nurturing Nordic and international contacts that are important for all scientific activities at Nordita.

In-house research

Nordita faculty members determine the direction of the in-house research at Nordita through their leadership and personal research activities. The successful recruitment into these positions is crucial to the long-term success of the institute and has been a major focus of the build-up effort since the move from Copenhagen. The plan laid out for the establishment of Nordita in Stockholm calls for having three tenured professors in Stockholm, with the recruitment of new professors timed in step with the retirement of

senior Nordita faculty in Copenhagen, along with five assistant professors, who are hired on a 5-year fixed term basis. By the end of 2010, two out of three tenured professors were in place in Stockholm: Axel Brandenburg in astrophysics and Konstantin Zarembo in high-energy theory. A third professorship was advertised with a Fall 2010 application deadline. A special appointment committee with representatives from the Nordita Board and the three local universities (SU, KTH and Uppsala University) has been charged with selecting a leading candidate from a group of 64 applicants.

In 2008 Professor Axel Brandenburg was awarded an ERC Advanced Grant of 2,22 million Euro over 5 years for his project *Astrophysical Dynamos*. The project started in February 2009 and by the end of 2010 the activity was in full swing making Nordita one of the leading centres for the study of magneto hydrodynamics and turbulence in astrophysics worldwide.

At the end of 2010 the academic staff in Stockholm included:
- Larus Thorlacius, *director,*
- Axel Brandenburg, *professor,*
- Konstantin Zarembo, *professor,*
- Matthias Reinhardt, *visiting professor* (supported by ERC AstroDyn Grant),
- Eddy Ardonne, *assistant professor,*
- Ralf Eichhorn, *assistant professor*,
- Troels Harmark, *assistant professor,*
- Sabine Hossenfelder, *assistant professor* (on parental leave from November 2010),
- Jani-Petri Martikainen, *assistant professor* (on parental leave from October 2010),
- Dhrubaditya Mitra, *assistant professor* (supported by ERC AstroDyn Grant),

along with ten Nordita Postdoctoral Fellows:
- Annica Black-Schaffer,
- Niccolo Bucciantini,
- Valentina Giangreco M. Puletti,
- Paata Kakashvili,
- Chi-kwan Chan,
- Ville Lahtinen,
- Sean Nowling,
- Sami Nurmi,
- Sigurður Stefánsson,
- Stefan Zieme.

A majority of the Nordita Fellows have a Nordic background: four are Nordic citizens and another three were PhD students or postdoctoral fellows at Nordic universities before joining Nordita. In Fall 2010 a new round of Nordita Fellowships for 2011 – 2013 was advertised. Over 400 applications were received for six postdoctoral positions.

In addition to the Nordita Fellowships there were three postdoctoral fellows and four PhD students supported by the ERC Advanced Grant for the Astrophysical Dynamos project:
- Piyali Chatterjee, *postdoctoral fellow*,
- Gustavo Guerrero, *postdoctoral fellow*,
- Alexander Hubbard, *postdoctoral fellow,*
- Simon Candelaresi, *PhD student*,

- Fabio Del Sordo, *PhD student,*
- Koen Kemel, *PhD student,*
- Jörn Warnecke, *PhD student.*

The academic staff in Copenhagen at the end of 2010 included:
- John Hertz, *professor*,
- Paolo DiVecchia, *emeritus professor* (retired October 2010),
- Christopher Pethick, *emeritus professor* (retired February 2010).

Both Paolo DiVecchia and Christopher Pethick remain active in research and have been granted the status of *Nordita Emeritus Professor* by the Nordita Board, which implies continued full access to Nordita facilities for a two-year period, renewable.

In September 2010 it was announced that Christopher Pethick will receive the 2011 Hans A. Bethe Prize from the American Physical Society, *"For fundamental contributions to the understanding of nuclear matter at very high densities, the structure of neutron stars, their cooling, and the related neutrino processes and astrophysical phenomena."*

Programs, workshops, conferences, summer-schools

Seven scientific programs, with a total duration of nine months, were conducted at Nordita in 2010:
- *The Influence of Confinement on Phase Transitions*, February 15 – March 1, and December 12 – 17. Coordinators: B. Hjörvarsson (Uppsala Univ.), O. Eriksson (Uppsala Univ.), A. Rosengren (KTH), S.T. Bramwell (Univ. Coll. London).
- *Turbulent Boundary Layers and Turbulent Combustion,* April 6 – May 28. Coordinators: A. Brandenburg (Nordita), N.E. Haugen (SINTEF), H. Alfredsson (KTH), Geert Brethouwer (KTH), A. Johansson (KTH), Philipp Schlatter (KTH).
- *Integrability in String and Gauge Theory; AdS/CFT Duality and its Applications,* May 31 – July 9. Coordinators: L. Freyhult (Uppsala Univ.), J. Minahan (Uppsala Univ.), K. Zarembo (ENS, Paris), G. Policastro (ENS, Paris).
- *Quantum Solids, Liquids, and Gases,* July 19 – August 27. Coordinators: E. Babaev (Univ. of Massachusetts & KTH), E. Lundh (Umeå Univ.), J-P. Martikainen (Nordita), C. Pethick (NBI & Nordita), M. Wallin (KTH).
- *Quantum Matter in Low Dimensions: Opportunities and Challenges,* August 30 – September 24. Coordinators: E. Ardonne (Nordita), H. Johannesson (Univ. of Gothenburg), G. Mussardo (SISSA, Trieste).
- *Quantum Information,* September 27 – October 29. Coordinators: M. Bourennane (SU), G. Björk (KTH), I. Bengtsson (SU).
- *Random Geometry and Applications,* November 1 – December 10. Coordinators: B. Duurhus (Univ. of Copenhagen), Z. Burda (Jagiellonian Univ.).

Nordita provides housing in apartments in Stockholm for program participants and in addition the scientific programs are allocated a budget of 250 kSEK per program-month to cover participant travel and various local expenses. The total cost of the scientific programs in 2010 including rent for the apartments was approximately 5900 kSEK.

Nordita organized nine conferences and workshops in 2010, some of which were associated with ongoing scientific programs while others were stand-alone events. The meetings were held at the AlbaNova Centre in Stockholm unless stated otherwise.

- *Nordic Workshop on Statistical Physics: Biological, Complex and Non-Equilibrium Systems*, March 17 – 19. Coordinators: R. Eichhorn (Nordita), H. Fogedby (Univ. of Århus), A. Imparato (Univ. of Århus).
- *The 25th Nordic Meeting on "Strings, Fields, and Branes"*, KTH campus, Stockholm, March 25 – 27. Coordinators: D. Chialva (Nordita), P. DiVecchia (Nordita & NBI), V.G.M. Puletti (Nordita), A. Wijns (Nordita & Univ. of Iceland).
- *Statistical Mechanics of Learning and Inference*, Mariehamn, Åland, May 26 – 29. Coordinators: E. Aurell (KTH), M. Alava (Helsinki Univ. of Technology), J. Hertz (Nordita & NBI), Y. Roudi (Nordita).
- *Integrability in Gauge and String Theory 2010*, June 28 – July 2. Coordinators: L. Freyhult (Uppsala), J. Minahan (Uppsala), K. Zarembo (ENS, Paris), V.G.M. Puletti (Nordita).
- *Experimental Search for Quantum Gravity*, July 12 – 16. Coordinators: S. Hossenfelder (Nordita), G. Landsberg (Brown University), L. Smolin (Perimeter Institute).
- *Conference on Frontiers in Quantum Gases, Liquids, and Solids,* August 9 – 20. Coordinators: E. Babaev (Univ. of Massachusetts & KTH), E. Lundh (Umeå Univ.), J-P. Martikainen (Nordita), C. Pethick (NBI & Nordita), M. Wallin (KTH).
- *Quantum Matter in Low Dimensions: Opportunities and Challenges*, AlbaNova, September 6 – 10. Coordinators: E. Ardonne (Nordita), H. Johannesson (Gothenburg Univ.), G. Mussardo (SISSA, Trieste).
- *International Conference on Quantum Information and Computation*, Wenner-Gren Centre, Stockholm, October 4 – 8. Coordinators: I. Bengtsson (SU), G. Björk (KTH), M. Bourennane (SU), H. Heydari (SU), S. Sauge (KTH).
- *Applications of Random Graphs and Extreme Value Statistics*, November 22 – 24. Coordinators: B. Duurhus (Univ. of Copenhagen), Z. Burda (Jagiellonian Univ.).

Workshops and conferences are usually co-funded from other sources. The total amount of external support for these items was 600 kSEK while the cost carried by Nordita was 580 kSEK, for a total cost of 1180 kSEK for workshops and conferences in 2010.

Nordita has launched a series of annual *Winter Schools on Theoretical Physics*, the first of which was held at Nordita in Stockholm in January 2010. The focus area of the Winter School will vary from one year to the next, starting with astrophysics in the first year.

- *Nordita Winter School on Dynamos 2010: Above, Below, and In the Laboratory*, January 11 – 22. Organizer: Axel Brandenburg (Nordita).

This was a two-week advanced school for PhD students and postdoctoral researchers. The total cost was 430 kSEK of which 260 kSEK was covered by a grant from NordForsk.

The visiting scientist program

The Nordita Board decided to re-instate the *Corresponding Fellows* program that was run successfully for a number of years in Copenhagen. Under this program Nordita can enter into an agreement with individual scientists that they visit Nordita in Stockholm on a regular basis under a two-year period and participate in the scientific activities at the institute. Appointment as Nordita Corresponding is by invitation only. The first

Corresponding Fellow at Nordita in Stockholm is Yasser Roudi of the Kavli Institute for Systems Neuroscience/Centre for Biology of Memory in Trondheim.

Other long-term visitors in 2010, staying for one month or longer, were:
- Georg Bruun, Lund University, December 2009 – January 2010.
- Martin Bohm, Luleå Univ. of Technology, December 1, 2009 – April 26, 2010.
- Alexandr Zelthukin, Kharkov Institute of Physics and Technology, January 1 – February 15 and October 1 – November 15.
- Emeric Bron, Ecole Polytechnique Palaiseau, February 2 – July 31.
- Karl-Heinz Rädler, Astrophysical Institute Potsdam, March 17 – 28; August 4 – 27; and September 26 – October 21.
- Andreas Svedin, Columbia University, June 28 – August 26.
- Bengt Gustavsson, Uppsala University, September 1, 2010 – June 30, 2011.
- Leonid Kitchatinov, Institute for Solar-Terrestrial Physics, Irkutsk, September 15 – October 15.

In addition there were 69 short-term visitors staying for less than a month in 2010.

A new program of *Visiting PhD Fellows* was started in 2010, offering selected PhD students in the Nordic countries and Baltic Sea region the opportunity to spend time at Nordita and take advantage of the research environment and ongoing scientific activities at the institute and the AlbaNova University Center in Stockholm.

Three PhD students visited Nordita in Fall 2010 as part of this program:
- Remigiusz Durka, University of Wroclaw, Poland, October 18 – November 20.
- Ville Keränen, University of Helsinki, October 4 – December 4.
- Jakub Mielczarek, Jagiellonian University, October 11 – November 11.

Each visiting student was assigned a faculty mentor during their stay and all three gave seminars while at Nordita on their PhD thesis research.

Other items

Nordita co-organizes various physics activities at AlbaNova University Centre together with other institutes and research groups at the centre. During teaching semesters there is a weekly physics colloquium and more specialized seminar series in several areas of active research.

Nordita academic staff members are engaged in the supervision of PhD students in AlbaNova and at the University of Iceland. Assistant Professor Eddy Ardonne gave a 7.5 ECTS point course on *Electrodynamics* at Stockholm University in Spring 2010 and Deputy Director Ulf Wahlgren gave a 15 ECTS point course on *Quantum Mechanics* for PhD students in Spring 2010.

Scientific articles written by the research staff at Nordita and long-term visitors, including participants in scientific programs, are posted on a pre-print webpage that is part of the Nordita home page. Most of the posted articles are subsequently published in peer reviewed scientific journals. In 2010 there were 117 articles posted on the Nordita pre-print webpage.

Management

Nordita has a governing board, appointed jointly by the Rectors of KTH and SU, with one representative and one reserve member from each of the five Nordic countries, nominated by the respective research councils. The chairman of the board is nominated by NOS-N, the joint committee of the Nordic natural science research councils. Tasks of the Board include long-range planning, approving the annual budget, and deciding appointments of fixed-term scientific staff following an agreed-on procedure with the host universities.

The current Nordita board is appointed for the period July 1, 2010 to June 30, 2013:
Chairman:
Professor Thordur Jonsson, University of Iceland.
Denmark:
Regular: Professor Jes Madsen, University of Århus,
Alternate: Dr. Karsten Flensberg, University of Copenhagen.
Finland:
Regular: Professor Kalle-Antti Suominen, University of Turku,
Alternate: Professor Keijo Hämäläinen, University of Helsinki.
Iceland:
Regular: Professor Gunnlaugur Björnsson, University of Iceland,
Alternate: Professor Ivan Shelykh, University of Iceland.
Norway:
Regular: Professor Susanne Viefers, University of Oslo,
Alternate: Professor Per Osland, University of Bergen.
Sweden:
Regular: Professor Lars Börjesson, Chalmers Technical University,
Alternate: Professor Olle Eriksson, Uppsala University.

A director, nominated by the Nordita board and appointed by the presidents of SU and KTH for a period of three years (extendable), is responsible for the day-to-day operation of Nordita and provides scientific leadership. The position has been held by Professor Larus Thorlacius of the University of Iceland since July 2008. Professor Ulf Wahlgren of Stockholm University stepped down from his position as Deputy Director of Nordita on June 30, 2010.

At the end of 2010 the administrative staff at Nordita in Stockholm included:
- Anne Jifalt, Personnel Administrator,
- Iouri Belokopytov, IT System Manager (75% position),
- Hans Muehlen, IT and Web Support.

The position of Chief Administrator at Nordita was open at the end of 2010 but was taken up by Daniela Fitger in early 2011. In addition there were four student assistants (masters students at KTH and SU) hired on a per-hour basis to provide additional administrative support for the Nordita scientific programs.

Annual account 2010

The following table shows Nordita operating costs in 2010. It is taken from the accounting system at the Royal Institute of Technology (KTH).

RESULTATRÄKNING (kr)	**2010**
Gruanslag	0
Fofuanslag	1 313 092
Bidrag fr externa finansiärer	31 453 391
Uppdrag fr externa finansiärer	0
Övriga intäkter	602 752
Finansiella intäkter	62 054
SUMMA INTÄKTER	**33 431 289**
Personalkostnader	14 103 455
Lokalkostnader	6 543 807
Resor och traktamenten	1 263 883
Utrustning exkl avskr	139 469
Konsulttjänster	2 912 462
Drift och övrigt	1 361 904
Gemensamma kostnader	0
Avskrivningar	70 472
Finansiella kostnader	0
Stipendier	7 035 836
SUMMA KOSTNADER	**33 431 288**

Notes:
(1) *Fofuanslag* is a direct contribution from KTH towards housing and infrastructure costs for Nordita in Stockholm.
(2) *Bidrag från externa finansiärer* includes 13 119 kSEK from NMR.
(3) *Personalkostnader* includes Nordita personnel employed at KTH.
(4) *Lokalkostnader* includes housing and infrastructure costs for the institute at the AlbaNova center in Stockholm (which are reimbursed by KTH and SU) and also costs for apartments used by participants in scientific programs and other visitors.
(5) *Konsulttjänster* includes Nordita personnel in Copenhagen and some visiting scientists in Stockholm.
(6) *Stipendier* refers to stipends for Nordita Fellows and travel stipends for participants in scientific programs and other guests.

Nordita received a generous package of start-up funding from KTH and SU for the move from Copenhagen and establishment of Nordita in Stockholm. Some of this funding still remains at the institute's disposal but will be consumed during the 2010-13 contract period. The amount carried over to 2011 is 17 744 kSEK.

Key figures and statistics

Note: We have not filled in the item “Projektredegørelse” since we do not have specific projects other than Nordita itself.

Tabel 1: Resultatopsummering

Der udarbejdes en kortfattet opsummering af de vigtigste resultater for virksomheden i rapporteringsåret. Opsummeringen bør ikke overstige ¼ A4 side.

Activities at Nordita consist of high-level research by its academic staff, supplemented by *scientific programs, workshops and symposia*, and a *visiting scientist program.* Staff members at Nordita engage in research on a broad range of topics in astrophysics, biological physics, condensed matter physics, gravitation and cosmology, statistical physics/complex systems, and subatomic physics. During 2010 a total of 117 scientific articles were posted on the Nordita preprint webpage, most of which are subsequently published in leading international refereed research journals.

Seven scientific programs (of four to six weeks duration each) were organized at Nordita, covering a broad range of frontier topics within theoretical physics and related areas. Nordita also organized nine international conferences and workshops (each for 3 days to a week long), along with a two-week *Winter School on Dynamos* for advanced PhD students and postdoctoral fellows in January 2010. It is the first in a series of annual *Nordita Winter Schools on Theoretical Physics* to be held at Nordita in Stockholm.

At the end of 2010, the academic staff of Nordita included the Director, three tenured professors (two based in Stockholm and one in Copenhagen), one visiting professor, six assistant professors (five-year fixed term positions), ten Nordita Postdoctoral Fellows, along with three postdoctoral fellows and five PhD students supported by external grants. Nordita had 8 long-term visitors, staying for a month or longer in 2010, and 69 short-term visitors.

Tabel 2: Administrativa udgifter

	2010	2009
Administrativa utgifter	4 349	5303 kSEK

Notes:

(1) Housing and infrastructure costs are reimbursed by KTH and SU and are not included in the table.

(2) The decrease in administrative costs from 2009 to 2010 is mainly due to the administration not being fully staffed part of 2010 and due to extra costs in 2009 in connection with an evaluation of the institute by an external panel of experts and recruitment into several faculty positions.

Tabel 3: Opstilling over bevægelser i perioden 2008 - 2010

	2008	2009	2010
Overført fra tidligere år	0	0	0
Budget	13908 kSEK	14200 kSEK	13119 kSEK
Udbetalinger	13908 kSEK	14200 kSEK	13119 kSEK
Overføring til kommende år	0	0	0

Notes:
(1) Table 3 only lists NMR funding, which covers approximately 40% of annual operating costs of the institute. Full operating costs for 2010 are included above under *Financial statement 2010*.
(2) The NMR financing has been used up each year with no NMR funds transferred to coming years (see table 4 below).

Tabel 4: Forældede midler pr. 31.12.2010

	Beløb
Overført fra før 2008	0
+ Budget 2008	13908 kSEK
- Udbetalinger 2008	13908 kSEK
- Udbetalinger 2009	0
- Udbetalinger 2010	0
= Forældede midler	0

Stockholm, February 14, 2011.

Prof. Larus Thorlacius
Director of Nordita

Nordita Operations 2011

Preamble

Since 2007 Nordita has been hosted by Stockholm University (SU) and the Royal Institute of Technology (KTH) at the AlbaNova University Centre in Stockholm, which also houses a major part of the physical sciences at the two universities. The institute has been successfully re-established in Stockholm, following the move from Copenhagen, and is engaged in scientific activities across a broad range, to the benefit of the Nordic physics community. Nordita still maintains a presence in Copenhagen with one professor remaining and two emeriti professors, who reached retirement age in 2010 but remain fully active in research.

Research and related activities

The scientific activities at Nordita are anchored in the in-house research program that the resident academic staff is engaged in. At present astrophysics, astrobiology, cosmology, biological physics, condensed matter physics, mathematical physics, statistical physics/complex systems and high energy physics are represented to varying extent at Nordita (including activities in Copenhagen). Nordita academic staff maintains close ties with faculty and research staff at the local universities in Stockholm and Copenhagen and at other Nordic universities. This includes collaboration on research projects, co-supervising graduate students, organizing joint seminars and colloquia, and more. In addition to the in-house research, Nordita is engaged in several more service oriented activities: *scientific programs, workshops and symposia, and a visiting scientist program.*

In a *scientific program*, a group of experts within a particular area of research comes together to work on specific research problems, usually for a period of one to two months. The international scientific community is invited to submit proposals for programs in theoretical physics and related areas. Program proposals are reviewed by an external Program Committee and decided by the Nordita Board.

Workshops and symposia are another important part of Nordita's scientific work. They are organized throughout the year, often in connection with an ongoing scientific program, but also as stand-alone events. Some workshops are organized and run by Nordita alone but others jointly together with other research institutes or universities.

The *visiting scientist program* provides for short term visits by both junior and senior researchers. The visitor program also enables longer term visits by scientists who are collaborating with Nordita staff and by senior scientists on sabbatical leave from their home institutions. The program is essential for promoting and nurturing Nordic and international contacts that are important for all scientific activities at Nordita.

In-house research

Nordita faculty members determine the direction of the in-house research at Nordita through their leadership and personal research activities. The successful recruitment into these positions is crucial to the long-term success of the institute and has been a major focus of the build-up effort since the move from Copenhagen. The plan laid out for the establishment of Nordita in Stockholm calls for having three tenured professors in

Stockholm, with the recruitment of new professors timed in step with the retirement of senior Nordita faculty in Copenhagen, along with five assistant professors, who are hired on a 5-year fixed term basis.

In 2011, two out of three tenured professors were in place in Stockholm: Axel Brandenburg in astrophysics and Konstantin Zarembo in high-energy theory. The third professor, Alexander Balatsky in condensed matter theory, will join Nordita in August 2012. Visiting professor John Wettlaufer, from Yale University, spent the Fall 2011 term at Nordita. He will remain for another year at Nordita as the recipient of the 2012 Tage Erlander Guest Professor award from the Swedish Research Council.

In 2008 Professor Axel Brandenburg was awarded an ERC Advanced Grant of 2,22 million Euro over 5 years for his project *Astrophysical Dynamos*. The project started in February 2009 and has enabled Nordita to become one of the leading centres for the study of magnetohydrodynamics and turbulence in astrophysics worldwide.

At the end of 2011 the academic staff in Stockholm included:

- Larus Thorlacius, *director,*
- Axel Brandenburg, *professor,*
- Konstantin Zarembo, *professor,*
- Eddy Ardonne, *assistant professor,*
- Ralf Eichhorn, *assistant professor*,
- Troels Harmark, *assistant professor,*
- Sabine Hossenfelder, *assistant professor* (on parental leave),
- Jani-Petri Martikainen, *assistant professor* (on leave from August 2011),
- Dhrubaditya Mitra, *assistant professor* (supported by ERC AstroDyn Grant),
- John Wettlaufer, visiting professor

along with ten Nordita Postdoctoral Fellows:

- Dimitri Bykov, *Nordita Fellow,*
- Chi-kwan Chan, *Nordita Fellow,*
- Ville Lahtinen, *Nordita Fellow,*
- Oksana Manyuhina, *Nordita Fellow,*
- Sean Nowling, *Nordita Fellow,*
- Sami Nurmi, *Nordita Fellow,*
- Sigurður Stefánsson, *Nordita Fellow,*
- Juha Suorsa, *Nordita Fellow,*
- Dmytro Volin, *Nordita Fellow,*
- Stefan Zieme, *Nordita Fellow.*

Half of the Nordita Fellows have a Nordic background: four are Nordic citizens and one was a postdoctoral fellow at a Nordic university before joining Nordita. A new round of Nordita Fellowships for 2011 – 2013 has been advertised and 226 applications received for six new postdoctoral positions.

In addition to the Nordita Fellows, there were two postdoctoral fellows at Nordita supported by a grant from the Icelandic Research Fund:

- Ville Keränen, *postdoctoral fellow,*
- Tobias Zingg, *postdoctoral fellow,*

four PhD students supported by the ERC AstroDyn grant:
- Simon Candelaresi, *PhD student*,
- Fabio Del Sordo, *PhD student,*
- Koen Kemel, *PhD student,*
- Jörn Warnecke, *PhD student,*

and two PhD students supported by grants from the Swedish Research Council:
- Fernanda Pinheiro, *PhD student,*
- Babak Majidzadeh Garjani, *PhD student*.

The academic staff in Copenhagen at the end of 2011 included:
- John Hertz, *professor*,
- Paolo DiVecchia, *emeritus professor* (retired October 2010),
- Christopher Pethick, *emeritus professor* (retired February 2010).

Both Paolo DiVecchia and Christopher Pethick remain active in research and have been granted the status of *Nordita Emeritus Professor* by the Nordita Board, which implies continued full access to Nordita facilities for a two-year period, renewable.

Christopher Pethick was awarded the 2011 Hans A. Bethe Prize by the American Physical Society, *"For fundamental contributions to the understanding of nuclear matter at very high densities, the structure of neutron stars, their cooling, and the related neutrino processes and astrophysical phenomena."*

Scientific articles written by the research staff at Nordita and long-term visitors, including participants in scientific programs, are posted on a pre-print webpage that is part of the Nordita home page. Most of the articles are subsequently published in peer reviewed scientific journals. In 2011 there were 125 articles posted on the Nordita pre-print webpage.

Scientific Programs

Eight one-month scientific programs were conducted at Nordita in 2011:
- *The Return of de Sitter*, February 28 – March 18. Coordinators: A. Goobar (Stockholm Univ.), F. Hassan (Stockholm Univ.), S. Hofmann (LMU Munich).
- *Applications of Network Theory: From Mechanisms to Large-Scale Structure,* March 28 – April 20. Coordinators: P. Holme (Umeå Univ.), P. Minnhagen (Umeå Univ.).
- *Predictability + School on Data Assimilation,* April 26 – May 27. Coordinators: A. Brandenburg (Nordita), E. Lindborg (KTH), J. Nycander (Stockholm Univ.), A. Sacha Brun (Univ. of Colorado), J. Brandefelt (KTH), G. Brethouwer (KTH).
- *String Phenomenology,* May 30 – June 25. Coordinators: M. Berg (Stockholm Univ.), P. Di Vecchia (Nordita), G. Ferretti (Chalmers Univ.).
- *Dynamo, Dynamical Systems and Topology,* July 25 – August 19. Coordinators: H. Lundstedt (Swed. Inst. of Space Physics), A. Kosovichev (Stanford Univ.), A. Brandenburg (Nordita).
- *Studying Quantum Mechanics in the Time Domain,* August 22 – September 16. Coordinators: : J.-P. Hansen (Bergen Univ.), E. Lindroth (Stockholm Univ.), E. Räsänen (Jyväskylä Univ.).
- *Foundations and Applications of Non-Equilibrium Statistical Mechanics,* September 19 – October 14. Coordinators: R. Eichhorn (Nordita), A. Imparato (Århus Univ.), H. Fogedby (Århus Univ.), C. Mejía-Monasterio (Technical Univ. of Madrid).

- *Geometry of Strings and Fields,* November 1 – December 3. Coordinators: U. Lindström (Uppsala Univ.), M. Zabzine (Uppsala Univ.).

Nordita provided accommodation in apartments in Stockholm for program participants and in addition the scientific programs were allocated a budget of 250 kSEK per program-month to cover participant travel and various local expenses. The total cost of the scientific programs in 2010 including rent for the apartments was approximately 5560 kSEK.

Workshops, conferences

Nordita organized eight conferences and workshops in 2011, some of which were associated with ongoing scientific programs while others were stand-alone events. The meetings were held at the AlbaNova Centre in Stockholm unless stated otherwise.

- *Tage Erlander Award Conference on Frontiers of Condensed Matter Physics,* January 3 – 8. Coordinators: E. Babaev (Univ. of Massachusetts), E. Ardonne (Nordita)
- *RädlerFest: Alpha Effect and Beyond*, February 14 – 18. Coordinators: A. Brandenburg (Nordita), I. Rogachevski (Ben-Gurion Univ.).
- *The 2nd Nordic Workshop on Statistical Physics: Biological, Complex and Non-equilibrium Systems*, February 23 – 25. Coordinators: R. Eichhorn (Nordita), H. Fogedby (Århus Univ.), A. Imparato (Århus Univ.).
- *Conference on Applications of Network Theory,* April 7 – 9. Coordinators: P. Holme (Umeå Univ.), P. Minnhagen (Umeå Univ.).
- *Statistical Mechanics and Computation of DNA Self-Assembly,* Mariehamn, Åland, May 25 – 28. Coordinators: E. Aurell (KTH), M. Alava (Aalto Univ.), R. Eichhorn (Nordita), R. Metzler (Technical Univ. of Munich), P. Orponen (Aalto Univ.).
- *Symposium on Topological Quantum Computation*, June 4 – 5. Coordinator: V. Lahtinen (Nordita).
- *The Solar Course, the Chemic Force, and the Speeding Change of Water*, October 17 – 21. Coordinator: D. Mitra (Nordita).
- *The 28th Nordic Network Meeting on "Strings, Fields and Branes",* December 1 – 3. Coordinators: U. Lindström (Uppsala Univ.), M. Zabzine (Uppsala Univ.).

Workshops and conferences are usually co-funded from other sources. The total amount of external support for these items was 500 kSEK while the cost carried by Nordita was 590 kSEK, for a total cost of 1090 kSEK for workshops and conferences in 2011.

Advanced Schools

The second annual *Winter School on Theoretical Physics*, was held at Nordita in Stockholm in January 2011. The focus area of the Winter School varies from one year to the next, with astrophysics in the first year followed by condensed matter physics.

- *2011 Nordita Winter School on Condensed Matter Physics,* January 10 – 21. Organizers: E. Ardonne (Nordita), E. Babaev (Univ. of Massachusetts).

This was a two-week advanced school for PhD students and postdoctoral researchers. The total cost was 244 kSEK.

Visiting scientist programs

Long-term visitors in 2011, staying for one month or longer, were:

- Hans Behringer, Univ. of Mainz, March 11 – April 4; September 5 – 18.
- Andrew Bergman, Princeton Univ., August 5 – October 31.

- Stefano Bo, Univ. of Torino, October 23 – December 23.
- Bengt Gustavsson, Uppsala University, January 1 – December 31.
- Christian Karlewski, Univ. of Bielefeld, July 31, 2011 – January 15, 2012.
- Jon Magne Leinaas, Univ. of Oslo, April 26 – May 28.
- Karl-Heinz Rädler, Astrophysical Institute Potsdam, Jan 10 – 28; May 30 – June 21; November 2 –25.
- Robbert Schoo, Utrecht Univ., August 26, 2011 – January 16, 2012.
- Christos Tsagas, Aristotle Univ. of Thessaloniki, September 26 – December 5.
- Alexandr Zelthukin, Kharkov Institute of Physics and Technology, January 1 – February 15; October 1 – November 15.

In addition there were 46 short-term visitors staying for less than a month in 2010.

Corresponding Fellows are individual scientists from the international community who visit Nordita in Stockholm on a regular basis under a two-year period and participate in scientific activities at the institute. A Corresponding Fellow has the status of a visiting faculty member while at Nordita. The program was started in 2010 and participation is by invitation from the Nordita Board. In 2011 there was one Corresponding Fellow: Yasser Roudi of the Kavli Institute for Systems Neuroscience in Trondheim, Norway, appointed from June 2010 to May 2012.

The successful program of *Visiting PhD Student Fellows* was continued in 2011, offering selected PhD students, primarily from the Nordic countries and Baltic Sea region, the opportunity to spend time at Nordita and take advantage of the research environment and ongoing scientific activities at the institute and the AlbaNova University Center in Stockholm. Five PhD students visited Nordita in 2011 as part of this program:
- Giuseppe Di Bernardo, Univ. of Gothenburg, May 15 – June 14; July 31 – August 22.
- Jakko Nissinen, University of Oslo, October 3 – December 23.
- Igor Shenderovich, CEA Saclay, France, April 11 – June 12.
- Jan Snellman, University of Helsinki, July 23 – September 3.
- Hong-Li Zeng, Aalto University, July 1 – August 21.

Each Visiting PhD Student Fellow is assigned a faculty mentor during their stay at Nordita, who monitors their progress and provides scientific guidance.

Other items

Nordita co-organizes various physics activities at AlbaNova University Centre together with other institutes and research groups at the centre. There is a weekly physics colloquium and more specialized seminar series in several areas of active research.

Assistant Professor Eddy Ardonne gave a 7.5 ECTS point course on *Electrodynamics* in Spring 2011 and a PhD level course on *Conformal Field Theory* in Fall 2011 at Stockholm University.

Professor Konstantin Zarembo gave a 28 hour lecture course on *Quantum Field Theory* in the *Perimeter Scholars International* program at the Perimeter Institute in Canada, October 3 – 21.

During 2011 Nordita academic staff members were engaged in the supervision of six PhD students at Stockholm University.

Management

Nordita has a governing board with one representative and one reserve member from each of the five Nordic countries, nominated by the respective research councils and appointed jointly by the Rectors of KTH and SU. The chairman of the board is nominated by NOS-N, the joint committee of the Nordic natural science research councils. Tasks of the Board include long-range planning, approving the annual budget, and deciding appointments of fixed-term scientific staff following an agreed-on procedure with the host universities.

The current Nordita board is appointed for the period July 1, 2010 to June 30, 2013:
Chairman:
Professor Thordur Jonsson, University of Iceland.
Denmark:
Regular: Professor Jes Madsen, University of Århus,
Alternate: Dr. Karsten Flensberg, University of Copenhagen.
Finland:
Regular: Professor Kalle-Antti Suominen, University of Turku,
Alternate: Professor Keijo Hämäläinen, University of Helsinki.
Iceland:
Regular: Professor Gunnlaugur Björnsson, University of Iceland,
Alternate: Professor Ivan Shelykh, University of Iceland.
Norway:
Regular: Professor Susanne Viefers, University of Oslo,
Alternate: Professor Per Osland, University of Bergen.
Sweden:
Regular: Professor Lars Börjesson, Chalmers Technical University,
Alternate: Professor Olle Eriksson, Uppsala University.

A director, nominated by the Nordita board and appointed by the presidents of SU and KTH for a period of three years (extendable), is responsible for the day-to-day operation of Nordita and provides scientific leadership. The position has been held by Professor Larus Thorlacius of the University of Iceland since July 2008.

At the end of 2011 the administrative staff at Nordita in Stockholm included:
- Marianne Persson Söderlind, *Head of Administration*,
- Anne Jifält, *Personnel Administrator*,
- Iouri Belokopytov, *IT System Manager* (75% position),
- Hans Mühlen, *IT and Web Support*.

In addition there were three student assistants (masters students at KTH and SU) hired on a per-hour basis to provide additional administrative support for the Nordita scientific programs.

Annual account 2010

The following table shows Nordita operating costs in 2011. It is taken from the accounting system at the Royal Institute of Technology (KTH).

Intäkter	
Fofuanslag	5 489 959
Bidrag externa finansiärer	24 552 224
Övriga intäkter	232 176
Finasiella intäkter	328 405
Summa: Intäkter	30 602 764
Kostnader	
Personalkostnader	-13 729 735
Lokalkostnader	-6 375 126
Resor och traktamenten	-980893
Utrustning exkl avskr	-183811
Konsulttjänster	-1 592 083
Drift och övrigt	-1 586 908
Avskrivningar	-51 462
Finansiella kostnader	-6 478
Stipendier	-6 096 268
Summa: Kostnader	-30 602 764

Notes:
(1) *Fofuanslag* is a direct contribution from KTH towards housing and infrastructure costs for Nordita in Stockholm.
(2) *Bidrag från externa finansiärer* includes 12 831 kSEK from NMR.
(3) *Personalkostnader* includes Nordita personnel employed at KTH.
(4) *Lokalkostnader* includes housing and infrastructure costs for the institute at the AlbaNova center in Stockholm (which are reimbursed by KTH and SU) and also costs for apartments used by participants in scientific programs and other visitors.
(5) *Konsulttjänster* includes Nordita personnel in Copenhagen and some visiting scientists in Stockholm.
(6) *Stipendier* refers to stipends for Nordita Fellows and travel stipends for participants in scientific programs and other guests.

Nordita received a generous package of start-up funding from KTH and SU for the move from Copenhagen and establishment of Nordita in Stockholm. Some of this funding still remains at the institute's disposal but will be consumed by the end of the 2010-13 contract period. The amount carried over to 2012 is 10 160 kSEK.

Key figures and statistics

Note: We have not filled in the item “Projektredegørelse” since we do not have specific projects other than Nordita itself.

Tabel 1: Resultatopsummering

Der udarbejdes en kortfattet opsummering af de vigtigste resultater for virksomheden i rapporteringsåret. Opsummeringen bør ikke overstige ¼ A4 side.

Activities at Nordita consist of high-level research by its academic staff, supplemented by *scientific programs, workshops, symposia, and advanced schools,* and a *visiting scientist program.* Academic staff members at Nordita engage in research on a broad range of topics in astrophysics, biological physics, condensed matter physics, gravitation and cosmology, statistical physics/complex systems, and subatomic physics. A total of 125 scientific articles were posted on the Nordita preprint webpage in 2011, most of which are subsequently published in leading international refereed research journals.

Eight scientific programs (of four weeks duration each) were organized at Nordita, covering a broad range of frontier topics within theoretical physics and related areas. Nordita also organized eight international conferences and workshops (ranging from 3 days to a week long) along with a two-week *Winter School on Condensed Matter Physics* for advanced PhD students and postdoctoral fellows.

At the end of 2010, the academic staff of Nordita included the Director, three tenured professors (two based in Stockholm and one in Copenhagen), one visiting professor, six assistant professors (five-year fixed term positions), eleven Nordita Postdoctoral Fellows, along with two postdoctoral fellows and six PhD students supported by external grants. Nordita had ten long-term visitors, staying for a month or longer in 2010 and forty-six short-term visitors. Five Visiting PhD Student Fellows spent one to three months each at Nordita.

Tabel 2: Administrativa udgifter

	2011	2010
Administrativa utgifter	4926 kSEK	4 349 kSEK

Notes:

(1) Housing and infrastructure costs are reimbursed by KTH and SU and are not included in the table.

(2) The increase in administrative costs from 2010 to 2011 is mainly due to the administration not being fully staffed during part of 2010.

Tabel 3: Opstilling over bevægelser i perioden 2008 - 2010

	2009	2010	2011
Overført fra tidligere år	0	0	0
Budget	14200 kSEK	13119 kSEK	12831 kSEK
Udbetalinger	14200 kSEK	13119 kSEK	12831 kSEK
Overføring til kommende år	0	0	0

Notes:
(1) Table 3 only lists NMR funding, which covers approximately 40% of annual operating costs of the institute. Full operating costs for 2011 are included above under *Annual Account 2011*.
(2) The NMR financing has been used up each year with no NMR funds transferred to coming years (see table 4 below).

Tabel 4: Forældede midler pr. 31.12.2010

	Beløb
Overført fra før 2008	0
+ Budget 2008	14200 kSEK
- Udbetalinger 2008	14200 kSEK
- Udbetalinger 2009	0
- Udbetalinger 2010	0
= Forældede midler	0

Stockholm, February 15, 2011.

Prof. Larus Thorlacius
Director of Nordita

Nordita Operations 2012

Preamble

Nordita is hosted by Stockholm University (SU) and the Royal Institute of Technology (KTH) at the AlbaNova University Centre in Stockholm. Its purpose is to carry out research, train young scientists, and strengthen collaboration within theoretical physics. Nordita moved to Stockholm in 2007 from Copenhagen, where it was located since its opening in 1957, and is engaged in scientific activities across a broad range, to the benefit of the Nordic physics community. Nordita still maintains a presence in Copenhagen with one professor remaining in 2012 and two emeriti professors, who reached retirement age in 2010 but continue to be fully active in research.

Research and related activities

The scientific activities at Nordita are anchored in the research carried out by the academic staff. At present astrophysics, astrobiology, cosmology, biophysics, condensed matter physics, mathematical physics, statistical physics/complex systems and high energy physics are represented to varying extent. The Nordita academic staff maintains close ties with faculty and research staff at the local universities in Stockholm and Copenhagen and at other Nordic universities. This includes collaboration on research projects, co-supervising graduate students, organizing joint seminars and colloquia, and more. In addition to the in-house research, Nordita is engaged in several more service oriented activities: *scientific programs, workshops and symposia, and a visiting scientist program.*

In a *scientific program*, a group of experts within a particular area of research comes together to work on specific research problems, usually for a period of one to two months. The international scientific community is invited to submit proposals for programs in theoretical physics and related areas. Program proposals are reviewed by an external Program Committee and decided upon by the Nordita Board.

Workshops and symposia are another important part of Nordita's scientific work. They are organized throughout the year, often in connection with an on-going scientific program, but also as stand-alone events. Some of the workshops are organized jointly together with other research institutes or universities.

The *visiting scientist program* provides for short term visits by both junior and senior researchers. The visitor program also enables longer term visits by scientists who are collaborating with Nordita staff and by senior scientists on sabbatical leave from their home institutions. The program is essential for promoting and nurturing Nordic and international contacts that are important for all scientific activities at Nordita.

In-house research

Nordita faculty members determine the direction of the in-house research at Nordita through their leadership and personal research activities. The successful recruitment into these positions is crucial to the long-term success of the institute and has been a major focus of the build-up effort since the move from Copenhagen in 2007. The plan laid out for the establishment of Nordita in Stockholm calls for having three tenured *Nordita Professors* in Stockholm, along with five *Assistant Professors*, hired on a five-year fixed-term basis, and ten *Nordita Fellows,* on two-year postdoctoral fellowships. Nordita

Fellows are recruited internationally but many of them have a Nordic background, being either Nordic citizens, having a PhD from a Nordic university, or working in a Nordic country before joining Nordita.

By the end of 2012, all three tenured professors were in place in Stockholm: Axel Brandenburg in astrophysics and Konstantin Zarembo in high-energy theory and Alexander Balatsky in condensed matter theory. John Wettlaufer from Yale University was the recipient of the prestigious 2012 Tage Erlander Guest Professorship, awarded by the Swedish Research Council, and spent the year as visiting professor at Nordita.

Nordita faculty members have been very successful in obtaining funding for research projects. In 2008 Professor Axel Brandenburg was awarded an ERC Advanced Grant for a project titled *Astrophysical Dynamos (AstroDyn)*. The five-year project started in February 2009 and has enabled Nordita to become one of the leading centres for the study of magnetohydrodynamics and turbulence in astrophysics worldwide.

Another ERC Advanced Grant to Professor Alexander Balatsky, for a project titled *Dirac Materials*, was announced in Fall 2012. The five-year project will start in April 2013.

Other external funding includes several grants from the Swedish Research Council and from the Icelandic Research Fund. These grants are mainly used to support junior scientists including PhD students and postdoctoral fellows.

At the end of 2012 the academic staff in Stockholm included:

- Lárus Thorlacius, *director,*
- Alexander Balatsky, *professor,*
- Axel Brandenburg, *professor,*
- Konstantin Zarembo, *professor,*
- Ralf Eichhorn, *assistant professor*,
- Sabine Hossenfelder, *assistant professor,*
- Dhrubaditya Mitra, *assistant professor* (supported by the AstroDyn ERC Grant),
- Stephen Powell, *assistant professor,*
- John Wettlaufer, *visiting professor* (Tage Erlander Guest Professorship),

along with eleven Nordita Fellows:

- Dimitri Bykov, *Nordita fellow,*
- Oksana Manyuhina, *Nordita fellow,*
- Sreejith Ganesh Jaya, *Nordita fellow,*
- Blaise Goutéraux, *Nordita fellow,*
- Oliver Gressel, *Nordita fellow,*
- Juha Jäykkä, *Nordita fellow,*
- Mikhail Modestov, *Nordita fellow*,
- Juha Suorsa, *Nordita fellow,*
- Anthony van Eysden, *Nordita fellow,*
- Dmytro Volin, *Nordita fellow,*
- Donovan Young, *Nordita fellow.*

During 2012, three assistant professors left Nordita: Eddy Ardonne became a lecturer at Stockholm University. Troels Harmark and Jani-Petri Martikainen took up research positions at the Niels Bohr Institute and Aalto University respectively.

A new round of Nordita Fellowships for 2013 – 2015 was advertised in Fall 2012 and 331 applications received for five new fellowships.

In addition to the Nordita fellows, there were six postdoctoral fellows at Nordita supported by external grants:

- Alessandra Cagnazzo, *postdoctoral fellow (Angelo Della Riccia Foundation, Italy),*
- Ebru Devlen, *postdoctoral fellow (Scientific & Technol. Research Council of Turkey),*
- Andong He, *postdoctoral fellow (Swedish Research Council),*
- Ville Keränen, *postdoctoral fellow (Icelandic Research Fund),*
- Francesco Mancarella, *postdoctoral fellow (KTH Royal Institute of Technology),*
- Kjartan Thor Wikfeldt, *postdoctoral fellow (Icelandic Research Fund),*

and seven PhD students supported by external grants:

- Simon Candelaresi, *PhD student (ERC AstroDyn),*
- Fabio Del Sordo, *PhD student (ERC AstroDyn),*
- Sarah Jabbari, *PhD student (Swedish Research Council),*
- Babak Majidzadeh Garjani, *PhD student (Swedish Research Council)*,
- Koen Kemel, *PhD student (ERC AstroDyn)*,
- Fernanda Pinheiro, *PhD student (Swedish Research Council),*
- Jörn Warnecke, *PhD student (ERC AstroDyn)*.

The academic staff in Copenhagen at the end of 2012 included:

- John Hertz, *professor*,
- Paolo DiVecchia, *emeritus professor* (retired October 2010),
- Christopher Pethick, *emeritus professor* (retired February 2010).

Both Paolo DiVecchia and Christopher Pethick remain active in research and have the status of *emeritus professor*, which implies continued full access to Nordita facilities for a two-year period, renewable. John Hertz retired at the end of January 2013 and has now also been granted the status of emeritus professor.

Scientific articles written by the research staff at Nordita and long-term visitors, including participants in scientific programs, are posted on a pre-print webpage that is part of the Nordita home page. Most of these articles are subsequently published in peer reviewed scientific journals. In 2012 there were 110 articles posted on the Nordita pre-print webpage.

Scientific Programs

Eight one-month scientific programs were conducted at Nordita in 2012:

- *Exact Results in Gauge-String Dualities*, January 23 – February 17: Lisa Freyhult (Uppsala Univ.), Vladimir Kazakov (ENS Paris), Charlotte Kristjansen (Niels Bohr Institute), Joseph Minahan (Uppsala Univ.), Konstantin Zarembo (Nordita).
- *Dynamics of Biomolecular Processes: From Atomistic Representations to Coarse-Grained Models*, February 27 – March 23: Hans Behringer (Univ. of Mainz), Ralf Eichhorn (Nordita), Stefan Wallin (Lund Univ.).
- *Biology and Physics of Information Processing*, April 16 – May 11: John Hertz (Nordita), Peter Latham (UCL), Yasser Roudi (Kavli Institute Trondheim & Nordita).
- *Origin of Mass*, May 28 – June 22: Paolo DiVecchia (Nordita), Sten Hellman (Stockholm Univ.), Francesco Sannino (Odense Univ.), Kimmo Tuominen (Odense Univ.)
- *Topological States of Matter – Insulators, Superconductors, and Hall Liquids,* July 30 – August 25: Eddy Ardonne (Nordita), Annica Black-Schaffer (Uppsala Univ.), Hans Hansson (Stockholm Univ.).
- *Spin-Related Phenomena in Mesoscopic Transport,* September 3 – 28: Ivan Shelykh (Univ. of Iceland), Karl-Fredrik Berggren (Linköping Univ.), Olle Eriksson (Uppsala Univ.), Michael Pepper (Univ. College London).
- *The Holographic Way: String Theory, Gauge Theory and Black Holes,* October 1 – 26: Troels Harmark (Nordita), Niels Obers (NBI), Marta Orselli (NBI).

- *Perspectives in Fundamental Cosmology,* November 5 – 30: Martin Bojowald (Penn State), Kristina Giesel (Univ. of Erlangen) Sabine Hossenfelder (Nordita), Mairi Sakellariadou (Kings College, London).

The scientific programs are allocated a budget of 500 kSEK per program-month to cover accommodation in Stockholm, travel and miscellaneous other expenses. The total direct cost of the scientific programs in 2012 was approximately 3 870 kSEK.

Workshops, conferences

Nordita organized eleven conferences and workshops in 2011. The meetings were held at the AlbaNova Centre in Stockholm unless stated otherwise.

- *Common Trends in Gauge Fields, Strings and Integrable Systems,* February 6 – 10: Lisa Freyhult (Uppsala Univ.), Vladimir Kazakov (ENS, Paris), Charlotte Kristiansen (NBI), Joseph Minahan (Uppsala Univ.), Konstantin Zarembo (Nordita).
- *The 3rd Nordic Workshop on Statistical Physics: Biological, Complex and Non-Equilibrium Systems*, March 28 – 30: Ralf Eichhorn (Nordita), Alberto Imparato (Univ. of Århus).
- *Consultation Meeting on Solar--Terrestrial Relations*, May 22: Bengt Gustafsson (Nordita & Uppsala Univ.), Axel Brandenburg (Nordita).
- *The Evolution of Protoplanetary Disks and their Coupling to Central Stars*, May 23: Bengt Gustafsson (Nordita & Uppsala Univ.), Axel Brandenburg (Nordita).
- *Statistical Mechanics of Unsatisfiability and Glasses*, Mariehamn, Finland, May 23 – 26: Mikko Alava (Aalto Univ.), Erik Aurell (KTH), Ralf Eichhorn (Nordita), Pekka Orponen (Aalto Univ.).
- *Conference on the Origin of Mass 2012*, June 11 – 17: Paolo DiVecchia (Nordita), Sten Hellman (Stockholm Univ.), Francesco Sannino, Kimmo Tuominen, Chris Kouvaris, Claudio Pica (Odense Univ.),
- *Non-Locality: Aspects and Consequences*, June 27 – 29: Sabine Hossenfelder (Nordita).
- *13th Marcel Grossman Meeting*, Stockholm, July 1 – 7: Remo Ruffini (University of Rome) e*t al.*. A number of parallel sessions were held at Nordita.
- *Astrophysics Code Comparison Workshop,* Nordita, Stockholm, August 6 – 10: Chi-kwan Chan, Axel Brandenburg, Dhrubaditya Mitra (Nordita), Christoph Federrath (Monash Univ.), Alexei Kritsuk (UC San Diego), Åke Nordlund (Copenhagen Univ.), James Stone (Princeton Univ.).
- *12th European Workshop on Astrobiology (EANA 2012),* Nordita, Stockholm, October 15 – 17: Axel Brandenburg, Fabio Del Sordo (Nordita), Nils Holm, Wolf Geppert, Gianni Cataldi, Engy Ahmed (Stockholm Univ.).
- *The Holographic Way Conference,* Nordita, Stockholm, October 15 – 18: Niels Obers, Marta Orselli, Troels Harmark (Copenhagen Univ.), Donovan Young (Nordita).

Workshops and conferences are usually co-funded from other sources. The total amount of external support for these items was 850 kSEK while the cost carried by Nordita was 350 kSEK, for a total cost of 1200 kSEK for workshops and conferences in 2012.

Advanced Schools

The following schools were organized by Nordita in 2012:

- *2012 Nordita Winter School on Theoretical Particle Physics*, January 9 – 20: Paolo DiVecchia, Troels Harmark, Lárus Thorlacius, Konstantin Zarembo (Nordita).

- *Mini-School on Advanced Simulation Methods for Biomolecular Systems*, February 27 – March 2: Hans Behringer (Univ. of Mainz), Stefan Wallin (Lund Univ.), Ralf Eichhorn (Nordita).
- *Nordita MasterClass 2012*, Hillerød, Denmark, July 28 – August 3: Dhrubaditya Mitra, Paolo DiVecchia (Nordita).

The *Nordita Winter School on Theoretical Physics* is an annual event with a focus area that varies from one year to the next. The 2012 school was supported by a 465 kSEK Research Training Course grant from NordForsk.

Visiting scientist program

Long-term visitors in 2011, staying for one month or longer, were:

- Gunnlaugur Björnsson, University of Iceland, September 1 – November 30,
- Martin Heinze, Humboldt University, Germany, September 17 – November 30.
- Nathan Kleeorin, Ben Gurion University, Israel, 63 days in 4 visits,
- Damian Kwiatkowski, University of Warsaw, Poland, August 6 – September 6.
- Brett McInnes, Singapore National University, July 23 – December 23,
- Igor Rogachevski, Ben Gurion University, Israel, 76 days in 5 visits,
- Jian-Huang She, Los Alamos National Laboratory, USA, October 21 – November 24.
- Alexandr Zelthukin, Kharkov Institute of Physics and Technology, Ukraine, January 1 – February 15; October 1 – November 15.

In addition there were 48 short-term visitors staying for less than a month in 2012.

Corresponding Fellows are scientists invited by the Nordita Board to visit Nordita on a regular basis during a three-year period to participate in scientific activities at the institute. Corresponding fellows have the status of visiting faculty members while at Nordita. At the end of 2012 Nordita had two corresponding fellows:

- Yasser Roudi, Kavli Institute for Systems Neuroscience, Trondheim, October 2010 - September 2013,
- Bengt Gustafsson, Uppsala University, February 2012 – January 2015.

Visiting PhD Student Fellowships offer selected PhD students the opportunity to spend time at Nordita and take advantage of the research environment and ongoing scientific activities at the institute and the AlbaNova University Center in Stockholm. Priority is given to students from the Nordic countries but students from outside the region can be considered as well. Seven PhD students visited Nordita in 2012 as part of this program:

- Giuseppe Di Bernardo, University of Gothenburg, April 22 – June 1,
- Benjamin Dunn, Kavli Institute for Systems Neuroscience, Trondheim, April 14 – May 12,
- Jesper Greitz, Kings College, London, April 1 – May 31,
- Anupam Gupta, Indian Institute of Science, September 15 – November 15,
- Oleksandr Kyriienko, University of Iceland, January 8 – February 20,
- Ivan Savenko, University of Iceland, January 9 – February 20,
- Dmitri Yudin, Uppsala University, May 17 – June 15.

Each Visiting PhD Student Fellow is assigned a faculty mentor during their stay at Nordita, who monitors their progress and provides scientific guidance.

Other items

Nordita co-organizes various physics activities at the AlbaNova University Centre together with other institutes and research groups at the centre. This includes a weekly physics colloquium and more specialized seminar series in areas of active research.

The following Nordita faculty members taught university lecture courses in 2012:

- Eddy Ardonne, *Electrodynamics* (7.5 ECTS units), Stockholm University, Spring 2012.
- Axel Brandenburg, *Astrophysical Hydro- and Magnetohydrodynamics* (7.5 ECTS units), Stockholm University, Spring 2012.
- Konstantin Zarembo, *Quantum Field Theory* (28 lecture hours) at *Perimeter Scholars International* program at the Perimeter Institute in Canada, October 1 – 19.

Nordita participated in the *AlbaNova Open House,* a one-day public outreach event at the AlbaNova University Centre on October 22, with posters describing ongoing research at Nordita and exhibits on theoretical physics phenomena for a non-specialist audience.

Management

Nordita has a governing board with one representative and one reserve member from each of the five Nordic countries, nominated by the respective research councils and appointed jointly by the Rectors of KTH and SU. The chairman of the board is nominated by NOS-N, the joint committee of the Nordic natural science research councils. Tasks of the Board include long-range planning, approving the annual budget, and appointing fixed-term scientific staff following a procedure agreed upon with the host universities.

The current Nordita board is appointed for the period July 1, 2010 to June 30, 2013:
Chairman:
Professor Thordur Jonsson, University of Iceland.
Denmark:
Professor Jes Madsen, University of Århus,
Professor Karsten Flensberg, University of Copenhagen (reserve member).
Finland:
Professor Kalle-Antti Suominen, University of Turku,
Professor Keijo Hämäläinen, University of Helsinki (reserve member).
Iceland:
Professor Gunnlaugur Björnsson, University of Iceland,
Professor Ivan Shelykh, University of Iceland (reserve member).
Norway:
Professor Susanne Viefers, University of Oslo,
Professor Per Osland, University of Bergen (reserve member).
Sweden:
Professor Lars Börjesson, Chalmers Technical University,
Professor Olle Eriksson, Uppsala University (reserve member).

A director, nominated by the Nordita board and appointed by the presidents of SU and KTH for a period of three years (extendable), is responsible for the day-to-day operation of Nordita and provides scientific leadership. The position has been held by Professor Lárus Thorlacius of the University of Iceland since July 2008.

At the end of 2011 the administrative staff at Nordita in Stockholm included:

- Marianne Persson Söderlind, *Head of Administration*,
- Anne Jifält, *Personnel Administrator*,
- Iouri Belokopytov, *IT System Manager* (75% position),
- Hans Mühlen, *IT and Web Support*,
- Elizabeth Yang, *Program Coordinator.*

Annual account 2012

The following table shows Nordita operating costs in SEK in 2012 according to the accounting system at KTH Royal Institute of Technology.

Intäkter (SEK)	
Fofuanslag	2 410 297
Bidrag externa finansiärer	30 582 747
Övriga intäkter	163 513
Finasiella intäkter	189 961
Summa: Intäkter	33 346 518
Kostnader (SEK)	
Personalkostnader	-16 955 790
Lokalkostnader	-3 022 898
Resor och traktamenten	-3 900 311
Utrustning exkl avskr	-311 843
Konsulttjänster	-1 345 984
Drift och övrigt	-2 299 025
Avskrivningar	-532 290
Finansiella kostnader	-8 519
Stipendier	-5 469 858
Summa: Kostnader	-33 346 518

Notes:

(1) *Fofuanslag* is a direct contribution from KTH towards housing and infrastructure costs for Nordita in Stockholm.

(2) *Bidrag från externa finansiärer* includes 12 557 kSEK from NMR.

(3) *Personalkostnader* includes Nordita personnel employed through KTH.

(4) *Lokalkostnader* includes housing and infrastructure costs for the institute at the AlbaNova Center in Stockholm (which are reimbursed by KTH and SU) and also costs for apartments used by participants in scientific programs and other visitors.

(5) *Konsulttjänster* includes Nordita personnel in Copenhagen and some visiting scientists in Stockholm.

(6) *Stipendier* refers to stipends for Nordita Fellows and travel stipends for participants in scientific programs and other guests.

Key figures and statistics

Tabel 1: Resultatopsummering

Activities at Nordita consist of high-level research by its resident academic staff, supplemented by *scientific programs, workshops, symposia, advanced schools,* and a *visiting scientist program.* Scientists at Nordita engage in research on a broad range of topics in astrophysics, biological physics, condensed matter physics, gravitation and cosmology, statistical physics/complex systems, and subatomic physics. A total of 110 scientific articles were posted on the Nordita preprint webpage in 2012, most of which are subsequently published in leading international refereed research journals.

At the end of 2012, the academic staff of Nordita included the Director, four tenured Professors (three in Stockholm and one in Copenhagen), one Visiting Professor, four Assistant Professors (five-year fixed term positions), eleven Nordita Fellows, six Postdoctoral Fellows supported by external grants, and seven PhD students supported by external grants.

Eight scientific programs (of four weeks duration each) were organized at Nordita in 2012, covering a broad range of frontier topics within theoretical physics and related areas. Nordita also organized ten international conferences and workshops (ranging from 3 days to a week long) and three advanced schools, including a two-week *Winter School on Theoretical Particle Physics* for advanced PhD students and postdoctoral fellows.

Nordita had eight long-term visitors, staying for a month or longer in 2012 and 48 short-term visitors. Seven Visiting PhD student Fellows spent one to two months each at Nordita during 2012.

Tabel 2: Administrative udgifter

(Opgives i hele 1.000)	2012	2011
Administrative udgifter	5 751 kSEK	4 926 kSEK

Notes:
(1) Housing and infrastructure costs are reimbursed by KTH and SU and are not included in the table.
(2) The increase in administrative costs from 2011 to 2012 is mainly due to an increase in externally funded research activities.

Tabel 3: Opstilling over bevægelser i perioden 2010 - 2012

	2010	2011	2012
Overført fra tidligere år	0	0	0
Budget (NMR)	13 119 kSEK	12 831 kSEK	12 557 kSEK
Udbetalinger	13 119 kSEK	12 831 kSEK	12 557 kSEK
Overføring til kommende år	0	0	0

Notes:
(1) Table 3 only lists NMR funding, which covered less than 40% of annual operating costs of the institute in 2012. Full operating costs for 2012 are presented under *Annual Account 2012* above.
(2) The NMR financing has been used up each year with no NMR funds transferred to coming years (see table 4 below).

Tabel 4: Forældede midler pr. 31.12.2012

	Beløb
Overført fra før 2010	0
+ Budget 2010	13 119 kSEK
- Udbetalinger 2010	13 119 kSEK
- Udbetalinger 2011	0
- Udbetalinger 2012	0
= Forældede midler	0

Stockholm, February 15, 2013.

Prof. Lárus Thorlacius
Director of Nordita

Nordita Operations 2013

Preamble

Nordita is hosted by Stockholm University (SU) and the Royal Institute of Technology (KTH) at the AlbaNova University Center in Stockholm. Its purpose is to carry out research, train young scientists, and strengthen collaboration within theoretical physics in the Nordic region. Nordita moved to Stockholm in 2007 from Copenhagen, where it was located since its opening in 1957, and is engaged in scientific activities across a broad range, to the benefit of the Nordic physics community.

Research and related activities

The scientific activities at Nordita are anchored in the research carried out by the academic staff. At present, astrophysics, astrobiology, cosmology, biophysics, condensed matter physics, mathematical physics, statistical physics and complex systems as well as high energy physics, are represented to varying extent. The Nordita academic staff maintains close ties with faculty and research staff at the local universities in Stockholm and at other Nordic universities. This includes collaboration on research projects, co-supervising graduate students, organizing joint seminars and colloquia, and more. In addition to the in-house research, Nordita is engaged in several more service oriented activities: *scientific programs, workshops and symposia, and a visiting scientist program.*

In a *scientific program,* a group of experts within a particular area of research comes together to work on specific research problems, usually for a period of four to six weeks. The international scientific community is invited to submit proposals for programs in theoretical physics and related areas. Program proposals are reviewed by an external Program Committee and decided upon by the Nordita Board.

Workshops and symposia are an important part of the scientific activities at Nordita. They are organized throughout the year, often in connection with an on-going scientific program, but also as stand-alone events. Some of the workshops are co-organized with other research institutes or universities.

The *visiting scientist program* provides for short term visits by both junior and senior researchers. The visitor program also enables longer term visits by scientists who are collaborating with Nordita staff and by senior scientists on sabbatical leave from their home institutions. The program is essential for promoting and nurturing Nordic and international contacts that are important for all scientific activities at Nordita.

In-house research

Nordita faculty members determine the direction of the in-house research at Nordita through their leadership and personal research activities. Following the move to Stockholm, Nordita has had three tenured *Nordita Professors* in Stockholm, along with five *Assistant Professors,* hired on a five-year fixed-term basis, and ten *Nordita Fellows,* on two-year postdoctoral fellowships. Nordita Fellows are recruited internationally but many of them have a Nordic background, being either Nordic citizens, having a PhD from a Nordic university, or working in a Nordic country before joining Nordita. The number of Assistant Professors has been reduced as a result of the 20% reduction in the Nordic financing of Nordita in 2014 and further cuts in staff numbers may be necessary.

Nordita faculty members have been very successful in obtaining funding for research projects. In 2008 Professor Axel Brandenburg was awarded an ERC Advanced Grant for a five-year project on *Astrophysical Dynamos*. The project started in February 2009 and has enabled Nordita to become one of the leading centers for the study of magneto-hydrodynamics and turbulence in astrophysics worldwide. At the end of 2013, Professor Brandenburg and a group of Norwegian scientists at SINTEF and NTNU in Trondheim were awarded a project grant from the Norwegian Research Council for a four-year project on "*Particle transport and clustering in stratified turbulent flows.*"

A second ERC Advanced Grant to Nordita was awarded to Professor Alexander Balatsky in Fall 2012 for a five-year project on *Dirac Materials*, which started in April 2013. Professor Balatsky also leads a group of scientists from three Swedish universities, who were awarded a major grant from the Knut and Alice Wallenberg foundation for a five-year project titled *Functional Dirac Materials,* starting in July 2014.

The third ERC Advanced Grant to Nordita was awarded in Fall 2013 to Professor Konstantin Zarembo, for a five-year project on *Integrable Systems in Gauge and String Theory*, which will start in March 2014.

Other external funding includes several grants from the Swedish Research Council, the European Commission and from the Icelandic Research Fund. External grants are mainly used to support junior scientists including PhD students and postdoctoral fellows.

At the end of 2013 the academic staff in Stockholm included:

- Lárus Thorlacius, *director,*
- Alexander Balatsky, *professor,*
- Axel Brandenburg, *professor,*
- Konstantin Zarembo, *professor,*
- David Abergel, *assistant professor* (supported by the DiracMaterials ERC Grant),
- Ralf Eichhorn, *assistant professor*,
- Sabine Hossenfelder, *assistant professor,*
- Dhrubaditya Mitra, *assistant professor* (supported by the AstroDyn ERC Grant),
- Tomi Koivisto, *assistant professor,*
- Matthias Rheinhardt, *visiting professor* (supported by the AstroDyn ERC Grant),

along with ten Nordita Fellows:

- Jonathan Edge, *Nordita fellow,*
- Sreejith Ganesh Jaya, *Nordita fellow,*
- Blaise Goutéraux, *Nordita fellow,*
- Sven Bjarke Gudnason, *Nordita fellow,*
- Juha Jäykkä, *Nordita fellow,*
- Bidya Binay Karak, *Nordita fellow,*
- Alexander Krikun, *Nordita fellow,*
- Lars Mattsson, *Nordita fellow,*
- Mikhail Modestov, *Nordita fellow*,
- Anthony van Eysden, *Nordita fellow.*

A new round of Nordita Fellowships for 2014 – 2016 was advertised in Fall 2013. A total of 399 applications were received for five new fellowships.

In addition to the Nordita fellows, there were seven postdoctoral fellows at Nordita supported by external grants:

- Stanislav Boryzov, *postdoctoral fellow (KTH Royal Institute of Technology),*
- Francesco Mancarella, *postdoctoral fellow (KTH Royal Institute of Technology),*

- Daniele Marmioli, *postdoctoral fellow (Angelo Della Riccia Foundation, Italy),*
- Cecilia Rorai, *postdoctoral fellow (Swedish Research Council),*
- Nishant Singh, *postdoctoral fellow (Swedish Research Council),*
- Kjartan Thor Wikfeldt, *postdoctoral fellow (Icelandic Research Fund),*
- Konstantin Zakharchenko, *postdoctoral fellow (DiracMaterials ERC Grant),*

and six PhD students supported by external grants:

- Xinyi Chen, *PhD student (GATIS Marie Curie ITN network),*
- James Gordon, *PhD student (GATIS Marie Curie ITN network),*
- Sarah Jabbari, *PhD student (Swedish Research Council),*
- Babak Majidzadeh Garjani, *PhD student (Swedish Research Council)*,
- Illa R. Losada, *PhD student (Swedish Research Council),*
- Raffaele Marino, *PhD student (Swedish Research Council).*

The academic staff in Copenhagen at the end of 2013 included:

- John Hertz, *emeritus professor* (retired January 2013),
- Paolo DiVecchia, *emeritus professor* (retired October 2010),
- Christopher Pethick, *emeritus professor* (retired February 2010).

All three remain active in research and have the status of *emeritus professor*, which implies continued full access to Nordita facilities for a two-year period, renewable.

Scientific articles written by the research staff at Nordita and long-term visitors, including participants in scientific programs, are posted on www.nordita.org/preprints and subsequently most of them are published in peer reviewed scientific journals. There were 121 articles posted on the Nordita pre-print webpage in 2013.

Scientific Programs

Eight scientific programs were conducted at Nordita in 2013:

- *Pushing the Boundaries with Cold Atoms,* January 21 – February 15: Jonas Larson (Stockholm Univ.), Jani-Petri Martikainen (Nordita), Christopher Pethick (NBI & Nordita), Päivi Törmä (Alto Univ.).
- *Differential Rotation and Magnetism across the HR Diagram*, April 4 – 30: Maarit Mantere, Petri Käpylä (Univ. of Helsinki), Reiner Arlt (AIP, Potsdam).
- *Stability and Transition*, May 6 – 31: Ardeshir Hanifi (KTH & Swedish Defence Research Agency), Dan S. Henningson, Luca Brandt (KTH), Jens N. Sorensen (DTU).
- *Photo-evaporation in Astrophysical Systems*, June 3 – 28: Garrelt Mellema (Stockholm Univ.), Barbara Ercolano (LMU, Munich), Andreas Burkert (LMU, Munich).
- *Beyond the LHC,* July 1 –26: Per Osland (Univ. of Bergen), Are Raklev (Univ. of Oslo), Paolo DiVecchia (Nordita).
- *Superconductivity: The Second Century,* August 5 – 30: Alexander Balatsky (Nordita), Andrew Millis (Columbia Univ.), Asle Sudbø (NTNU, Trondheim).
- *Lyman-Alpha as an Astrophysical Tool,* September 2 – 27: Göran Östlin (Stockholm Univ.), Matthew Hayes (IRAP, Toulouse), Garrelt Mellema (Stockholm Univ.)

Each scientific programs is allocated a maximum budget of 500 kSEK per program-month to cover accommodation in Stockholm, travel and miscellaneous other expenses. The total direct cost of the scientific programs in 2013 was approximately 3 350 kSEK.

Workshops, conferences

Nordita organized nine conferences and workshops in 2013. The meetings were held at the AlbaNova Center in Stockholm unless stated otherwise.

- *The 4th Nordic Workshop on Statistical Physics: Biological, Complex and Non-Equilibrium Systems*, March 20 – 22: Ralf Eichhorn (Nordita), Alberto Imparato (Univ. of Århus).
- *Statistical Mechanics of Biological Cooperativity*, Mariehamn, Finland, May 22 – 25: Mikko Alava, Juho Rousu (Aalto Univ.), Erik Aurell (KTH), Ralf Eichhorn (Nordita).
- *Workshop for Science Writers: Astrophysics and Cosmology,* May 27 – 29: Sabine Hossenfelder (Nordita), George Musser (Scientific American).
- *Competing Orders in Functional Materials and their Applications*, June 3 – 5: Alexander Balatsky, John Hertz, Stephen Powell (Nordita), Anders Rosengren (KTH), Avadh Saxena (LANL).
- *Novel Approaches to DNA Sequencing, Nordita, Stockholm*, June 10 – 14: Alexander Balatsky (Nordita), Rodrigo G. Amorim, Ralph Scheicher (Uppsala Univ.), Dmitry A. Yarotski (LANL).
- *Beyond the LHC Workshop,* July 25 – 27: Are Raklev (Univ. of Oslo), Per Osland (Univ. of Bergen), Paolo DiVecchia (Nordita).
- *Lyman Alpha as an Astrophysical Tool Workshop*, September 9 – 13: Matthew Hayes (IRAP, Toulouse), Garrelt Mellema, Göran Östlin (Stockholm University).
- *12th Galactic Magnetism in the Era of LOFAR and SKA*, September 23 – 27: Rainer Beck (MPI Bonn), Axel Brandenburg (Nordita), Andrew Fletcher (Univ. of Newcastle), Bryan Gaensler (Univ. of Sidney), Oliver Gressel (NBIA), Cathy Horellou (Chalmers Univ.), Sui Ann Mao (Univ. of Wisconsin).
- *29th Nordic Network Meeting on "Strings, Fields and Branes,"* November 7 – 9: Paolo DiVecchia, Blaise Goutéraux, Sven Bjarke Gudnason, Alexander Krikun, Daniele Marmioli, Lárus Thorlacius, Konstantin Zarembo (Nordita).

Workshops and conferences are usually co-funded from other sources. The total amount of external support for these items was 245 kSEK while the cost carried by Nordita was 355 kSEK, for a total cost of 600 kSEK for workshops and conferences in 2013.

Advanced Schools

- *2013 Nordita Winter School on High-Energy Astrophysics*, January 9 – 20: Axel Brandenburg, Lárus Thorlacius (Nordita), Claes Fransson, Josefin Larsson, Stefan Rosswog (Stockholm University), Juri Poutanen (University of Oulu).

The *Nordita Winter School on Theoretical Physics* is an annual event with a focus area that varies from one year to the next.

Visiting scientist program

Long-term visitors in 2013, staying for one month or longer:

- Alessandra Cagnazzo, INFN Padova, Italy, January 13 – February 17,
- Martin Heinze, Humboldt University, Germany, July 17 – December 31.
- Chitre Kumar, University of Mumbai, India, June 1 – 30,
- Martha Lasia, CSIC Madrid, Spain, April 1 – September 12,
- Jakob Palmkvist, IHES Bur-sur-Yvette, March 11 – April 30,
- Karl-Heinz Rädler, AIP Potsdam, Germany, 98 days in 4 visits,
- Igor Rogachevski, Ben Gurion University, Israel, 72 days in 5 visits,
- Nicola Spaldin, ETH Zurich, Switzerland, January 21 – February 27,
- Kandaswamy Subramanian, IUCAA Pune, India, March 22 – April 21,
- Alexandr Zelthukin, Kharkov Institute, Ukraine, 90 days in 2 visits.

In addition there were 54 short-term visitors staying for less than a month in 2013.

Corresponding Fellows are scientists invited by the Nordita Board to visit Nordita on a regular basis during a three-year period to participate in scientific activities at the institute. Corresponding fellows have the status of visiting faculty members while at Nordita. At the end of 2013 Nordita had two corresponding fellows:

- Yasser Roudi, Kavli Institute for Systems Neuroscience, Trondheim,
- Bengt Gustafsson, Uppsala University.

Visiting PhD Student Fellowships offer selected PhD students the opportunity to spend time at Nordita and take advantage of the research environment and ongoing scientific activities at the institute and the AlbaNova University Center in Stockholm. Priority is given to students from the Nordic countries but students from outside the region can be considered as well. Four PhD students visited Nordita in 2013 as part of this program:

- Elizabeth Cole, University of Helsinki, November 1 – 28,
- Dmitri Kobyakov, Umeå University, October 7 – 13, November 24 – December 14,
- Peter Sundell, University of Turku, September 9 – October 10.
- Miikka Väisälä, University of Helsinki, August 5 – 24.

Each Visiting PhD Student Fellow is assigned a faculty mentor during their stay at Nordita, who monitors their progress and provides scientific guidance.

Other items

Nordita co-organizes various physics activities at the AlbaNova University Center together with other institutes and research groups at the center. This includes a weekly physics colloquium and more specialized seminar series in areas of active research.

The following Nordita staff members taught university lecture courses in 2013:

- Axel Brandenburg, *Advanced Astrophysical Fluid Dynamics* (7.5 ECTS units), Stockholm University, Spring 2013.
- Konstantin Zarembo and Alexander Krikun, *Relativity Theory* (7.5 ECTS units) at KTH Royal Institute of Technology, Fall 2014.

Nordita participated in a one-day public outreach event "Fysik i Kungsträdgården," in Stockholm on September 7, 2013 with posters describing ongoing research at Nordita and exhibits on theoretical physics phenomena for a non-specialist audience..

Management

Nordita has a governing board with one representative and one reserve member from each of the five Nordic countries, nominated by the respective research councils and appointed jointly by the Rectors of KTH and SU. The chairman of the board is nominated by NOS-N, the joint committee of the Nordic natural science research councils. Tasks of the Board include long-range planning, approving the annual budget, and appointing fixed-term scientific staff following a procedure agreed upon with the host universities.

The current Nordita board is appointed for the period July 1, 2013 to June 30, 2016:

Chairman:
Professor Kalle-Antti Suominen, University of Turku,

Denmark:
Professor Jes Madsen, University of Århus,
Professor Karsten Flensberg, University of Copenhagen (reserve member).

Finland:
Professor Katri Huitu, University of Helsinki,
Professor Mikko Alava, Aalto University (reserve member).

Iceland:
Professor Gunnlaugur Björnsson, University of Iceland,

Professor Ivan Shelykh, University of Iceland (reserve member).

Norway:

Professor Asle Sudbø, NTNU, Trondheim,

Professor Susanne Viefers, University of Oslo (reserve member)

Sweden:

Professor Olle Eriksson, Uppsala University,

Professor Måns Henningsson, Chalmers Technical University (reserve member).

A director, nominated by the Nordita board and appointed by the presidents of SU and KTH for a period of three years (extendable), is responsible for the day-to-day operation of Nordita and provides scientific leadership. The position has been held by Professor Lárus Thorlacius of the University of Iceland since July 2008.

At the end of 2013 the administrative staff at Nordita in Stockholm included:

- Marianne Persson Söderlind, *Head of Administration*,
- Anne Jifält, *Personnel Administrator*,
- Iouri Belokopytov, *IT System Manager* (75% position),
- Hans Mühlen, *IT and Web Support*,
- Elizabeth Yang, *Program Coordinator*.

Annual account 2013

The following table shows Nordita operating costs in SEK in 2013. It is taken from the accounting system at KTH Royal Institute of Technology.

Intäkter (SEK)	
Fofuanslag	3 346 357
Bidrag externa finansiärer	27 627 274
Övriga intäkter	111 500
Finansiella intäkter	105 050
Summa: Intäkter	31 190 180
Kostnader (SEK)	
Personalkostnader	-16 464 873
Lokalkostnader	-3 131 016
Resor och traktamenten	-1 477 507
Utrustning exkl avskr	-193 542
Konsulttjänster	-398 342
Drift och övrigt	-4 106 924
Avskrivningar	-9 071
Finansiella kostnader	-11 425
Stipendier	-5 397 480
Summa: Kostnader	-31 190 180

Notes:

(1) *Fofuanslag* is a direct contribution from KTH towards housing and infrastructure costs for Nordita in Stockholm.
(2) *Bidrag från externa finansiärer* includes 12 442 kSEK from NMR.
(3) *Personalkostnader* includes Nordita personnel employed through KTH.
(4) *Lokalkostnader* includes housing and infrastructure costs for the institute at the AlbaNova Center in Stockholm, which are reimbursed by KTH and SU.
(5) *Konsulttjänster* includes Nordita personnel in Copenhagen, a financial audit for an ERC grant, and cost of public outreach materials.
(6) *Stipendier* refers to stipends for Nordita Fellows and travel stipends for participants in scientific programs and other guests.
(7) *Drift och övrigt* now includes costs for travel and accommodation for visitors, as a result of changes in how costs are reported at KTH. This complicates comparisons between 2013 and earlier years.

Key figures and statistics

Tabel 1: Resultatopsummering

Activities at Nordita consist of high-level research by its resident academic staff, supplemented by *scientific programs, workshops, symposia, advanced schools,* and a *visiting scientist program.* Scientists at Nordita engage in research on a broad range of topics in astrophysics, biophysics, condensed matter physics, gravitation and cosmology, statistical physics and complex systems, as well as subatomic physics. A total of 121 scientific articles were posted on the Nordita preprint webpage in 2013, most of which are subsequently published in leading international refereed research journals.

At the end of 2013, the academic staff of Nordita included the Director, three tenured Professors, one Visiting Professor, five Assistant Professors (five-year fixed term positions) two of which were supported by external grants, ten Nordita Fellows, seven Postdoctoral Fellows supported by external grants, and six PhD Students on external grants. There were also three visiting Postdoctoral Fellows, supported by funding from their home institutes, and three Professors Emeriti based in Copenhagen, who are retired but remain active in research.

Seven scientific programs of four weeks duration each, and one two-week program, were organized at Nordita in 2013, covering a broad range of frontier topics within theoretical physics and related areas. Nordita also organized nine international conferences and workshops (ranging from 3 days to a week long) and a two-week *Winter School on High-Energy Astrophysics* for advanced PhD students and postdoctoral fellows.

In addition to participants in Nordita Programs and Workshops, Nordita had ten long-term visitors, staying for a month or longer in 2013 and 54 short-term visitors. Four Visiting PhD Student Fellows spent one month each at Nordita during 2013.

Tabel 2: Administrative udgifter

(Opgives i hele 1.000)	2013	2012
Administrative udgifter	5 189 kSEK	5 751 kSEK

Notes:

(1) Housing and infrastructure costs are reimbursed by KTH and SU and are not included in the table.

Tabel 3: Opstilling over bevægelser i perioden 2011 - 2013

	2011	2012	2013
Overført fra tidligere år	0	0	0
Budget (NMR)	12 831 kSEK	12 557 kSEK	12 442 kSEK
Udbetalinger	12 831 kSEK	12 557 kSEK	12 442 kSEK
Overføring til kommende år	0	0	0

Notes:
(1) Table 3 only lists NMR funding, which covered less than 40% of annual operating costs of the institute in 2013. Full operating costs for 2013 are presented under *Annual Account 2013* above.
(2) The NMR financing has been used up each year with no NMR funds transferred to coming years (see table 4 below).

Tabel 4: Forældede midler pr. 31.12.2013

	Beløb
Overført fra før 2011	0
+ Budget 2011	12 831 kSEK
- Udbetalinger 2011	12 831 kSEK
- Udbetalinger 2012	0
- Udbetalinger 2013	0
= Forældede midler	0

Stockholm, February 12, 2014.

Lárus Thorlacius

Prof. Lárus Thorlacius
Director of Nordita

Nordita Operations 2014

Preamble

Nordita is hosted by Stockholm University (SU) and the Royal Institute of Technology (KTH) at the AlbaNova University Center in Stockholm. Its purpose is to carry out research, train young scientists and strengthen collaboration within theoretical physics in the Nordic region. Nordita moved to Stockholm in 2007 from Copenhagen, where it was located since its opening in 1957, and is engaged in scientific activities across a broad range, to the benefit of the Nordic physics community.

Research and related activities

The scientific activities at Nordita are anchored in the research carried out by the academic staff. At present, astrophysics, astrobiology, biophysics, condensed matter physics, gravitation and cosmology, high-energy physics, as well as statistical physics and complex systems are represented to varying extent. The Nordita academic staff maintains close ties with faculty and research staff at the local universities in Stockholm and at other Nordic universities. This includes collaboration on research projects, co-supervising graduate students, organizing joint seminars and colloquia, and more. In addition to the in-house research, Nordita is engaged in several more service oriented activities: *scientific programs, conferences, advanced schools, and a visiting scientist program.*

In a *scientific program*, a group of experts within a particular area of research comes together to work on specific research problems, usually for a period of four weeks. The international scientific community is invited to submit proposals for programs in theoretical physics and related areas. Program proposals are reviewed by an external Program Committee and decided upon by the Nordita Board.

Conferences and schools are an important part of the scientific activities at Nordita. They are organized throughout the year, often in connection with an on-going scientific program, but also as stand-alone events. Some of the workshops are co-organized with other research institutes or universities.

The *visiting scientist program* provides for short term visits by both junior and senior researchers. The visitor program also enables longer term visits by scientists who are collaborating with Nordita staff and by senior scientists on sabbatical leave from their home institutions. The program is essential for promoting and nurturing Nordic and international contacts that are important for all scientific activities at Nordita.

In-house research

Nordita faculty members determine the direction of the in-house research at Nordita through their leadership and personal research activities. Following the move to Stockholm, Nordita has aimed at having, at any given time, three tenured *Nordita Professors* in Stockholm, along with five *Assistant Professors,* hired on a five-year fixed-term basis, and ten *Nordita Fellows,* on two-year postdoctoral fellowships. Nordita Fellows are recruited internationally but many of them have a Nordic background, being either Nordic citizens, having a PhD from a Nordic university, or working in a Nordic country before joining Nordita. The number of Assistant Professors has been reduced as a result of the 20% reduction in the Nordic financing of Nordita in 2014 and further cuts in staff numbers may be necessary.

Nordita faculty members have been very successful in obtaining funding for research projects. In 2008 Professor Axel Brandenburg was awarded an ERC Advanced Grant for a five-year project on *Astrophysical Dynamos*. The project started in February 2009 and has enabled Nordita to become one of the leading centers for the study of magneto-hydrodynamics and turbulence in astrophysics worldwide. At the end of 2013, Professor Brandenburg and a group of Norwegian scientists at SINTEF and NTNU in Trondheim were awarded a project grant from the Norwegian Research Council for a four-year project on "*Particle transport and clustering in stratified turbulent flows.*"

A second ERC Advanced Grant to Nordita was awarded to Professor Alexander Balatsky in Fall 2012 for a five-year project on *Dirac Materials*, which started in April 2013. Professor Balatsky also leads a group of scientists from three Swedish universities, who were awarded a major grant from the Knut and Alice Wallenberg foundation for a five-year project titled *Functional Dirac Materials,* started in July 2014.

The third ERC Advanced Grant to Nordita was awarded in Fall 2013 to Professor Konstantin Zarembo, for a five-year project on *Integrable Systems in Gauge and String Theory*, which started in March 2014.

Two faculty members, Katherine Freese (Director) as well as John S. Wettlaufer, the A.M. Bateman Professor at Yale University and visiting professor at Nordita 2011–2012, were both awarded 106 MSEK

grants over a 10-year period from the Swedish Research Council under the scheme "Grants from international recruitment of leading researchers."

Katherine Freese has also been awarded a Wallenberg grant together with Jan Conrad of Stockholm University in the amount of 28.5 MSEK for the *Direct detection of Dark Matter* (with the XENON detector).

Other external funding includes several grants from the Swedish Research Council, the European Commission and the Norwegian Research Council, and the Granholm Foundation. External grants are mainly used to support junior scientists including PhD students and postdoctoral fellows.

Academic staff in Stockholm includes:

- Katherine Freese, *director*
- Alexander Balatsky, *professor*
- Axel Brandenburg, *professor, deputy director*
- Konstantin Zarembo, *professor*
- Anders Rosengren, *professor* (part time, supported by KAW Grant)
- David Abergel, *assistant professor* (supported by the DiracMaterials ERC Grant)
- Ralf Eichhorn, *assistant professor* (supported by VR grant)
- Sabine Hossenfelder, *assistant professor*
- Dhrubaditya Mitra, *assistant professor* (supported a VR grant)
- Tomi Koivisto, *assistant professor*
- Michael Liberman, visiting professor (Uppsala University)
- Aleksandr Zheltukhin, visiting professor (Kharkov Institute for Physics and Technology of Ukrainian Academy of Sciences)
- Monica Guica, *senior lecturer* (joint position with Uppsala University)
- Henrik Johansson, *senior lecturer* (joint position with Uppsala University)

At the end of 2014 there were 10 Nordita Fellows:

- Jonathan Edge, *Nordita fellow*
- Sven Bjarke Gudnason, *Nordita fellow*
- Bidya Binay Karak, *Nordita fellow*
- Alexander Krikun, *Nordita fellow*
- Lars Mattsson, *Nordita fellow*
- Yen Chin Ong, *Nordita fellow*
- Adrian Kantian, *Nordita fellow*
- Marcelo A. Dias, *Nordita fellow (joint appointment with Aalto Science Institute in Finland)*
- Matin Mojaza, *Nordita fellow*
- Lavinia Heisenberg, *Nordita fellow (joint appointment with Oscar Klein Centre at SU/KTH)*

A total of 455 applications were received for Nordita fellowships in Fall 2014 (*compared to 399 in 2013)*

During 2014, there were 4 Nordita fellows that left after completing their fellowship:

- Sreejith Ganesh Jaya, *left July 29*
- Blaise Goutéraux, *left August 31*
- Mikhail Modestov, *left August 31*
- Anthony van Eysden, *left August 31*

In addition to the Nordita fellows, there were also 12 postdoctoral fellows at Nordita supported by external grants:

- Stanislav Borysov, *postdoctoral fellow (*KTH Royal Institute of Technology*)*
- Francesco Mancarella, *postdoctoral fellow (*KTH Royal Institute of Technology*)*
- Cecilia Rorai, *postdoctoral fellow (*Swedish Research Council*)*
- Nishant Singh, postdoctoral fellow (*Swedish Research Council*)
- Fabio Del Sordo, *postdoctoral fellow* (*Swedish Research Council*)
- Christopher Savage, *postdoctoral position* supported by Nordita in connection with the recruitment of the new director
- Konstantin Zakharchenko, *postdoctoral fellow* (Dirac Materials *ERC Grant*)
- Mikhail Modestov, (Swedish Research Council)
- Pawel Caputa, *postdoctoral fellow* (Swedish Research Council)
- Amit Dekel, *postdoctoral fellow* (ERC Advanced Grant)
- Sergey Pershoguba, *postdoctoral fellows* (ERC Grant)
- Yaron Kedem, *postdoctoral fellow* (Swedish Research Council)

And 9 PhD students supported by external grants:

- Xinyi Chen, *PhD student* (GATIS Marie Curie ITN network)
- Saikat Banerejee, *PhD student (*Dirac Materials *ERC Grant)*
- Xiang-Yu Li, PhD *student* (Norwegian Research Council)
- Sarah Jabbari, *PhD student* (Swedish Research Council)
- Babak Majidzadeh Garjani, *PhD student* (Swedish Research Council)
- Illa R. Losada, *PhD student* (Swedish Research Council)
- Raffaele Marino, *PhD student* (Swedish Research Council)
- *Viktor Johnsson, PhD student* (KAW Foundation Grant)
- *Daniel Medina Rincon, PhD student* (ERC Integral Grant)
- *James Gordon, PhD student* (GATIS Marie Curie ITN Network), left September 30

The academic staff in Copenhagen at the beginning of 2015 included:

- John Hertz, *emeritus professor* (retired January 2013)
- Paolo DiVecchia, *emeritus professor* (retired October 2010)
- Christopher Pethick, *emeritus professor* (retired February 2010).

All three remain active in research and have the status of *emeritus professor*, which implies continued full access to Nordita facilities for a two-year period, renewable.

Scientific articles written by the research staff at Nordita and long-term visitors, including participants in scientific programs, are posted on www.nordita.org/preprints and subsequently most of them are published in peer reviewed scientific journals. There were **152** articles posted on the Nordita pre-print webpage in 2014 (121 in 2013 and 110 in 2012).

Scientific Programs

Seven scientific programs were conducted at Nordita in 2014:

- *News in Neutrino Physics, April 7 – May 2; Coordinators: Rikard Enberg (Uppsala Univ.), Tommy Ohlsson, Matthias Blennow (KTH), Thomas Schwetz (Stockholm University)*
- *What is the Dark Matter, May 5 – 30: Jan Conrad, Joakim Edsjö, Lars Bergström, Timur Delahaye (SU)*
- *Dynamics of Particles in Flows: Fundamentals and Applications, June 2 – 27; Coordinators: Fredrik Lundell (KTH), Dhrubaditya Mitra (Nordita), Bernhard Mehlig (Gothenburg Univ.), Federico Toschi (Eindhoven Univ.)*
- *Novel Directions in Frustrated and Critical Magnetism, July 14 – August 8; Coordinators: Eddy Ardonne (SU), Stephen Powell (Univ. of Nottingham), Anders Sandvik (Boston Univ.)*
- *Quantum Engineering of States and Devices, August 11 – September 5; Coordinators: Sougato Bose (Univ. College London), Reinhold Egger (Univ. of Düsseldorf), Henrik Johannesson (Gothenburg Univ.), Pasquale Sodano (IIP Natal, Brazil)*
- *Computational Challenges in Nuclear and Many-Body Physics, Sept. 15 – Oct. 10; Coordinators: Alexander Balatsky (Nordita), Roberto Liotta (KTH), Jorge Dukelsky (CSIC, Spain), Chong Qi (KTH), Ramon Wyss (KTH)*
- *Water – the Most Anomalous Liquid, 13 October – 7 November 2014; Coordinators: Lars G. M. Pettersson (Stockholm Univ.), Anders Nilsson (Stanford Univ.), Richard H. Henchman (Univ. of Manchester)*

The budget of a scientific program should not exceed 600 kSEK per program-month to cover accommodation in Stockholm, travel and miscellaneous other expenses. Nordita will contribute 400 kSEK and will match up 100 kSEK in external funding to reach the maximum budget of 600kSEK.

The total direct cost of the scientific programs in 2014 was **3246 kSEK**.

Conferences and Workshops

Nordita organized 13 conferences and workshops in 2014 and gave financial support for 2. The meetings were held at the AlbaNova Center in Stockholm unless stated otherwise.

- *The 5th Nordic Workshop on Statistical Physics: Biological, Complex and Non- Equilibrium Systems, March 26 – 28: Ralf Eichhorn (Nordita), Alberto Imparato (Univ. of Århus)*
- *Latest Results in Dark Matter Searches, May 12 – 14: Jan Conrad, Joakim Edsjö, Lars Bergström, Timur*

Delahaye (SU)

- *Active Fluids: New Challenges from Experiments to High-Performance Computing, Mariehamn, Finland, May 22 – 25: Mikko Alava (Aalto Univ.), Guido Boffetta (Univ. of Torino), Luca Brandt (KTH), Massimo Cencini (ISC-CNR, Rome), Dhrubaditya Mitra (Nordita), Antti Puisto (Aalto Univ.)*
- *COST Action FP1005 Meeting on Modelling of Fibre Suspension Flows, June 3 – 5: Fredrik Lundell (KTH), Dhrubaditya Mitra (Nordita), Bernhard Mehlig (Gothenburg Univ.), Federico Toschi (Eindhoven Univ.)*
- *Modelling and Inference for Dynamics in Complex and Disordered Systems, June 11 – 13: Yasser Roudi (Kavli Institute Trondheim & Nordita), Manfred Opper (Tech. Univ. Berlin), Peter Sollich (Kings College London)*
- *Conference on Dynamics of Particles in Flows, June 13 – 15: Fredrik Lundell (KTH), Dhrubaditya Mitra (Nordita), Bernhard Mehlig (Gothenburg Univ.), Federico Toschi (Eindhoven Univ.)*
- *Nobel symposium: New Forms of Matter - Topological Insulators and Superconductors, on Lidingö, Stockholm, June 13 – 15: Hans Hansson, Eddy Ardonne, Anders Karlhede (SU), Stellan Östlund (Gothenburg Univ.) (financial support from Nordita)*
- *Dirac Materials, Superconductivity, and Hybrid Nanostructures, June 16 – 19: David Abergel, Alexander Balatsky (Nordita)*
- *Supersymmetric Field Theories, August 13 – 16: Charlotte Kristjansen, (NBI) Matthias Staudacher (Humboldt Univ.), Konstantin Zarembo (Nordita)*
- *Holographic Methods and Applications, in Reykjavík, Iceland, August 18 – 22: Valentina Giangreco M. Puletti (Univ. of Iceland), Larus Thorlacius (Nordita & Univ. of Iceland)*
- *Conference on Quantum Engineering of States and Devices, August 18 – 23: Sougato Bose (Univ. College London), Reinhold Egger (Univ. of Düsseldorf) , Henrik Johannesson (Gothenburg Univ.), Pasquale Sodano (IIP Natal, Brazil)*
- *2nd Nordita Workshop for Science Writers, August 25 – 27: Sabine Hossenfelder (Nordita), George Musser (Scientific American)*
- *Experimental Search for Quantum Gravity, September 1 – 5 at SISSA, Trieste Italy: Maurizio Gasperini (Univ. of Bari), Sabine Hossenfelder (Nordita), Stefano Liberati, Roberto Peracci (SISSA), Lee Smolin (Perimeter Inst.) (financial support from Nordita)*
- *Dark Energy Interactions, October 1 – 3: Tomi Koivisto (Nordita), David F. Mota (Univ. of Oslo)*
- *Particle Growth in Turbulent Aerosols, 7 November: Axel Brandenburg (Nordita), Bernhard Mehlig (Chalmers Univ. of Technology)*

Workshops and conferences are usually co-funded from other sources. The total amount of cost carried by Nordita in 2014 was **1424 kSEK**.

Advanced Schools

- *Nordita Winter School 2014 in Condensed Matter Theory, 6—17 January 2014: Eddy Ardonne (Stockholm University), David Abergel (Nordita), Stephen Powell (University of Nottingham), Alexander Balatsky (Nordita)*
- *Nordita School on Integrability, August 4 – 12: Charlotte Kristjansen, (NBI), Matthias Staudacher (Humboldt Univ.), Konstantin Zarembo (Nordita)*

Visiting scientist program

Visitors in 2014, staying for one week or longer:

- Daniele Marmiroli, Niels Bohr Institute, 12 months
- Kjartan Thor Wikfeldt, University of Iceland, 11 months
- Harsha Raichur, Raman Research Institute Bangalore, 12 months
- Muneto Nitta, Keio University, January 16 – 22
- Igor Rogachevski, Ben Gurion University, 49 days, visited 3 times
- Alessandra Cagnazzo, DESY Hamburg, March 10 – 15
- Waldemar Schulgin, LPTHE Université Paris 6, March 10 – 15
- Matthias Kaminski, University of Washington, March 17 – 22
- Anja Andersen, NBI, April 1 – 5
- Stellan Östlund, Gothenburg University, April 14 – May 2
- Filippo Guarnieri, MPI Gravitatonphysik, 27 days, visited 2 times
- Hagen Münkler, Humboldt University, May 6 – 27

- Jonas Pollok, Humboldt University, May 6 – 27
- Debjani Paul, Indian Institute of Technology, Bombay, May 13 – 23
- Andrey Beresnyak, Naval Research Laboratory, astrophysics, August 1 – October 31
- Alexander Hubbard, American Museum of Natural History, August 9 – 16
- Nathan Kleeorin, Ben Gurion University, August 17 – 28
- Peter Sundell, University of Turku, September 15 – October 3
- Nils Erland Haugen NTNU, astrophysics, several short visits in October, November, and January 2015
- Alexey Golovnev, St. Petersburg State University, high-energy physics, 2–29 November
- Adam Solomon, DAMTP, University of Cambridge, high-energy physics, 25 September – 9 October
- Dario Bettoni, Technion, high-energy physics, 6–10 October
- Per Sundin, December 17 – March 1 2015

In addition there were 75 short-term visitors (54 in 2013) staying for less than a month in 2014. Corresponding Fellows are scientists invited by the Nordita Board to visit Nordita on a regular basis during a three-year period to participate in scientific activities at the institute. Corresponding fellows have the status of visiting faculty members while at Nordita. At the end of 2014 Nordita had two corresponding fellows:

- Bengt Gustafsson, Uppsala University
- Yasser Roudi, NTNU

Visiting PhD Student Fellowships offer selected PhD students the opportunity to spend time at Nordita and take advantage of the research environment and ongoing scientific activities at the institute and the AlbaNova University Center in Stockholm. Priority is given to students from the Nordic countries but students from outside the region can be considered as well. Five PhD students visited Nordita in 2014 as part of this program:

- Louise Anderson, Chalmers University, high energy physics, February 3 – April 30
- Yoshiki Sato, Kyoto University, February 26 – March 24
- Martin Heinze, Humboldt University, Berlin, high energy physics, March 1 – May 31
- Andreas Johansson, University of Iceland, astrophysics, April 28 – May 31
- Pallavi Bhat, IUCAA Pune University, May 1 – 31
- Hannu Nyrhinen, University of Helsinki, gravitation and cosmology, 28 days, visited 2 times
- Peter Sundell, University of Turku, cosmology, August 8 – January 16, 2015

Each Visiting PhD Student Fellow is assigned a faculty mentor during their stay at Nordita, who monitors their progress and provides scientific guidance.

Nordita co-organizes various physics activities at the AlbaNova University Center together with other institutes and research groups at the center. This includes a **weekly physics colloquium** and more specialized **seminar series** in areas of active research.

Management

Nordita has a governing board with one representative and one reserve member from each of the five Nordic countries, nominated by the respective research councils and appointed jointly by the Rectors of KTH and SU. The chairman of the board is nominated by NOS-N, the joint committee of the Nordic natural science research councils. Tasks of the Board include long-range planning, approving the annual budget, and appointing fixed-term scientific staff following a procedure agreed upon with the host universities. The current Nordita board is appointed for the period July 1, 2013 to June 30, 2016:

Chairman:
- Professor Kalle-Antti Suominen, University of Turku

Denmark:

- Professor Jes Madsen, University of Århus

- Professor Karsten Flensberg, University of Copenhagen (reserve member)

Finland:
- Professor Katri Huitu, University of Helsinki

- Professor Mikko Alava, Aalto University (reserve member)

Iceland:

- Professor Gunnlaugur Björnsson, University of Iceland

- Professor Ivan Shelykh, University of Iceland (reserve member)

Norway:

- Professor Asle Sudbø, NTNU, Trondheim
- Professor Susanne Viefers, University of Oslo (reserve member)

Sweden:

- Professor Olle Eriksson, Uppsala University
- Professor Måns Henningsson, Chalmers Technical University (reserve member)

A director, nominated by the Nordita board and appointed by the presidents of SU and KTH for a period of three years (extendable), is responsible for the day-to-day operation of Nordita and provides scientific leadership. The position has been held by Larus Thorlacius until August 2014 and by Katherine Freese since September 2014.

The administrative staff at Nordita in Stockholm includes:

- Iouri Belokopytov, *IT System Manager* (*part of the year*)
- Anne Jifält, *HR Officer*
- Hans Mühlen, *IT and Web Support*
- Marianne Persson Söderlind, *Head of Administration*
- Elizabeth Yang, *Program Coordinator*

Annual account 2014

The following table shows Nordita operating costs in SEK in 2014. It is taken from the accounting system at KTH Royal Institute of Technology.

Intäkter (SEK)	
Fofuanslag	2 810 357
Bidrag externa finansiärer	30 223 002
Övriga intäkter	588 395
Finansiella intäkter	106 035
Summa: Intäkter	33 728 410
Kostnader (SEK)	
Personalkostnader	-18 813 953
Lokalkostnader	-3 054 029
Resor och traktamenten	-2 029 453
Utrustning exkl avskr	-216 860
Konsulttjänster	-673 423
Drift och övrigt	-4 366 389
Avskrivningar	-23 272
Finansiella kostnader	-18 057
Stipendier	-4 532 974
Summa: Kostnader	-33 728 410

Notes:

(1) *Fofuanslag* is a direct contribution from KTH towards housing and infrastructure costs for Nordita in Stockholm.

(2) *Bidrag från externa finansiärer* includes 10 429 kSEK from NMR.

(3) *Personalkostnader* includes Nordita personnel employed through KTH.

(4) *Lokalkostnader* includes housing and infrastructure costs for the institute at the AlbaNova Center in Stockholm, which are reimbursed by KTH and SU.

(5) *Konsulttjänster* includes Nordita personnel in Copenhagen, shared cost for an Assistant professor employed by Uppsala University, and support to a conference outside Nordita.

(6) *Stipendier* refers to stipends for Nordita Fellows and their travels and travel stipends for participants in scientific programs and other guests.

(7) *Drift och övrigt* includes License for computer service, phone costs, PR, consumables and also costs for accommodation for visitors, as a result of changes in how costs are reported at KTH from 2013.

Key figures and statistics

Tabel 1: Resultatopsummering

Activities at Nordita consist of high-level research by its resident academic staff, supplemented by *scientific programs, workshops, symposia, advanced schools,* and a *visiting scientist program.* Scientists at Nordita engage in research on a broad range of topics in astrophysics, biophysics, condensed matter physics, gravitation and cosmology, statistical physics and complex systems, as well as subatomic physics. A total of 152 scientific articles were posted on the Nordita preprint webpage in 2014, most of which are subsequently published in leading international refereed research journals.

At the end of 2014, the academic staff of Nordita included the Director, four tenured Professors, two Visiting Professors, five Assistant Professors (five-year fixed term positions), three of which were supported by external grants, ten Nordita Fellows, twelve Postdoctoral Fellows supported by external grants, and nine PhD Students on external grants. There were also three Professors Emeriti based in Copenhagen, who are retired but remain active in research.

Seven scientific programs of minimum three-week duration each were organized at Nordita in 2014, covering a broad range of frontier topics within theoretical physics and related areas. Nordita also organized fifteen international conferences and workshops (ranging from 3 days to a week long) and three two-week *Advanced Schools on Theoretical Physics* (one of them was in the beginning of 2015) for PhD students and postdoctoral fellows.

In addition to participants in Nordita Programs and Workshops, Nordita had eighteen long-term visitors, staying for one week or longer in 2014 and 75 short-term visitors. Five Visiting PhD Student Fellows, each spending one to five months, visited Nordita during 2014.

Tabel 2: Administrative udgifter

(Opgives i hele 1.000)	2014	2013
Administrative udgifter	4 357 kSEK	5 189 kSEK

Notes:

(1) Housing and infrastructure costs are reimbursed by KTH and SU and are not included in the table.

Tabel 3: Opstilling over bevægelser i perioden 2012 - 2014

	2012	2013	2014
Overført fra tidligere år	0	0	0
Budget (NMR)	12 557 kSEK	12 442 kSEK	10 429 kSEK
Udbetalinger	12 557 kSEK	12 442 kSEK	10 429 kSEK
Overføring til kommende år	0	0	0

Notes:

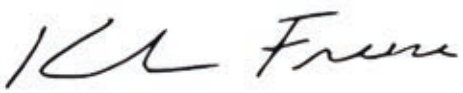
(1) Table 3 only lists NMR funding, which covered about 30% of annual operating costs of the institute in 2014. Full operating costs for 2014 are presented under *Annual Account 2014* above.

(2) The NMR financing has been used up each year with no NMR funds transferred to coming years (see table 4 below).

Tabel 4: Forældede midler pr. 31.12.2013

	Beløb
Overført fra før 2012	0
+ Budget 2012	12 557 kSEK
- Udbetalinger 2012	-12 557 kSEK
- Udbetalinger 2013	-12 443 kSEK
- Udbetalinger 2014	-10 429 kSEK
= Forældede midler	0

Stockholm, February 12, 2014.



Prof. Katherine Freese
Director of Nordita

I.1 Nordita Board Members

Table 51: List of representatives for the Nordic countries.

Main board member	alternate board member	Country
Prof. Jes Madsen (Aarhus U)	Prof. Karsten Flensberg (NBI)	Denmark
Prof. Katri Huitu (Helsinki U)	Prof. Mikko Alava (Aalto U)	Finland
Prof. Gunnlaugur Björnsson (Reykjavik)	Prof. Ivan Shelykh (Reykjavik)	Iceland
Prof. Asle Sudbø (NTNU)	Prof. Susanne Viefers (Oslo U)	Norway
Prof. Olle Eriksson (Uppsala)	Prof. Måns Henningsson (Gothenburg)	Sweden
Chairperson	Prof. Kalle-Antti Suominen (Turku)	Finland

I.2 Scientific Advisory Committee

- Curtis Callan (Princeton University)
- Graham Ross (Oxford University)
- Susan Coppersmith (University of Wisconsin)
- Joseph Silk (Oxford University)
- Steven Girvin (Yale University)
- Eberhard Gross (Max Planck Institute for Microstructure Physics, Halle)
- Gabriele Veneziano (Collége de France and CERN)

I.3 Research Committees

Astrophysics and Astrobiology

- Mats Carlsson, University of Oslo
- Jens Hjorth, NBI
- Cathy Horellou, Chalmers University of Technology
- Gudlaugur Jóhannesson, University of Iceland
- Harry Lehto, University of Turku

Condensed Matter and Biological Physics

- Annica Black-Schaffer, University of Uppsala
- Sigurdur Erlingsson, Reykjavk University
- Adam Foster, Aalto University
- Antti-Pekka Jauho, DTU
- Jacob Linder, NTNU

High-Energy Physics

- Valentina Giangreco M. Puletti, University of Iceland
- Oleg Lebedev, University of Helsinki
- Niels Obers, NBI
- Are Raklev, University of Oslo
- Johan Rathsman, Lund University

Gravitation and Cosmology

- Einar Gudmundsson, University of Iceland
- Fawad Hassan, Stockholm University
- Kimmo Kainulainen, University of Jyvskyl
- David Mota, University of Oslo
- Martin Sloth, University of Southern Denmark

J. Nordita Alumni now in Nordic academic positions

Former Nordita post-doctoral fellows and corresponding fellows who are now professors or assistant professors in Nordic universities.

In three cases, an asterisk denotes non-tenured employment.

Table 52: Alumni now in academic positions in *Finland*

Name	year at Nordita	employed today
Sami Nurmi*	2010–2012	Helsinki Univ.
Matthias Rheinhardt*	2009–2011	Helsinki Univ.
Jani-Petri Martikainen	2008–2012	Aalto Univ.
Petri Käpylä	2007–2008	Helsinki Univ.
Maarit Korpi/Mantere/Käpylä	2005–2005	Aalto Univ.
Ralf Metzler	2002–2006	Tampere Univ. (FiDiPro)
Kimmo Tuominen	2001–2003	Helsinki Univ.
Kimmo Kainulainen	1998–2002	Univ. of Jyväskylä
Mikko Alava	1996–1998	Aalto Univ.
Olav Tirkkonen	1996–1998	Aalto Univ.
Lauri Jetsu	1995–1997	Helsinki Univ.
Mikko Kaasalainen	1994–1996	Tampere Univ. of Technology
Iiro Vilja	1991–1993	Univ. of Turku
Kari Enqvist	1990–1994	Helsinki Univ.
Tom Lönnroth	1986–1987	Åbo Akademi Univ.
Risto Ritala	1984–1986	Tampere Univ. of Technology
Esko Valtaoja	1982–1984	Univ. of Turku
Erkki Thuneberg	1981–1982	Univ. of Oulu
Matti Manninen	1979–1981	Univ. of Jyväskylä
Paul Hoyer	1977–1981	Helsinki Univ. (retired)
Jussi Timonen	1977–1979	Univ. of Jyväskylä
Risto Nieminen	1975–1977	Aalto Univ.
Mikko Saarela	1973–1975	Univ. of Oulu (retired)
Don-Olov Riska	1969–1971	Helsinki Univ. (retired)
Perko Tapani	1965–1967	Helsinki Univ. (retired)
Christofer Cronström	1965–1966	Helsinki Unive (retired)
Keijo Kajantie	1963–1964	Helsinki Inst. of Physics
Alpo Kallio	1962–1964	Oulu University (retired)
Matts Roos	1962–1964	Helsinki Univ. (retired)
Kaarle Kurki-Suonio	1960–1962	Helsinki Univ.

Table 53: Alumni now in academic positions in *Denmark*

Name	year at Nordita	employed today
Oliver Gressel*	2012–2013	Copenhagen (NBIA)
Troels Harmark	2010–2012	Niels Bohr Institute
Anupam Mazumdar	2004–2007	Niels Bohr Institute (Hon. Assoc. Prof)
Anja Andersen	2002–2005	Niels Bohr Institute
Georg Bruun	2001–2002	Niels Bohr Institute
Steen Hannestad	2000–2002	Univ. of Aarhus
Kirstine Berg-Sørensen	1999–2001	Technical Univ. of Denmark
Niels Obers	1998–2000	Niels Bohr Institute
Jens Hjorth	1996–1998	Niels Bohr Institute
Per Hedegård	1995–1997	Niels Bohr Institute
Anders Krogh	1994–1995	Univ. of Copenhagen
Charlotte Kristjansen	1993–1997	Niels Bohr Institute
Arne Lykke Larsen	1992–1994	Univ. of Southern Denmark, Odense
Ole Bøssing Christensen	1992–1993	DMI
Karsten Flensberg	1991–1993	Niels Bohr Institute
Henrik Bruus	1990–1992	Technical Univ. of Denmark
Peter Thejll	1990–1992	DMI
Jens Madsen Houlrik	1990–1991	Univ. of Aalborg
Kim Sneppen	1989–1991	Niels Bohr Institute
Mogens Høgh Jensen	1986–1992	Niels Bohr Institute
Uffe Gråe Jrgensen	1984–1989	Niels Bohr Institute
Paolo Sibani	1983–1986	Univ. of Southern Denmark, Odense
Jrgen Christensen-Dalsgaard	1983–1984	Univ. of Aarhus
Jan Ambjørn	1982–1985	Niels Bohr Institute
Poul Henrik Damgaard	1982–1984	Niels Bohr Institute
Antti-Pekka Jauho	1981–1984	Technical Univ. of Denmark
Henrik Flyvbjerg	1981–1983	Technical Univ. of Denmark
Bergfinnur Durhuus	1980–1983	Math. Inst. Univ. of Copenhagen
Thomas Døssing	1979–1982	Niels Bohr Institute
Niels Kjaer Nielsen	1976–1979	Univ. of Southern Denmark, Odense
Åke Nordlund	1975–1978	Niels Bohr Institute
Hans Fogedby	1973–1974	Univ. of Aarhus (retired)
Aksel Stenholm Jensen	1971–1973	Univ. of Aarhus
Holger Bech Nielsen	1969–1971	Niels Bohr Institute (retired)
Bjarne Tromborg	1969–1971	Technical Univ. of Denmark
Henry Nielsen	1969–1969	Univ. of Aarhus
Jens Lyng Petersen	1967–1969	Niels Bohr Institute (retired)
Benny Lautrup	1965–1967	Niels Bohr Institute (retired)
Jakob Peter Bondorf	1963–1965	Niels Bohr Institute (retired)

Table 54: Alumni now in academic positions in *Iceland*

Name	year at Nordita	employed today
Sigurdur Stefánsson	2010–2012	Univ. of Iceland
Valentina Giangreco Puletti	2009–2011	Univ. of Iceland
Lárus Thorlacius	1995–1998	Univ. of Iceland
Thordur Jonsson	1982–1987	Univ. of Iceland
Einar Gudmundsson	1978–1981	Univ. of Iceland

Table 55: Alumni now in academic positions in *Norway*

Name	year at Nordita	employed today
Piyali Chatterjee*	2009–2011	Oslo Univ.
Yasser Roudi	2008–2010	Norwegian Univ. of Science and Technology
Audun Bakk	2002–2004	SINTEF, Trondheim
Øystein Elgarøy	2002–2003	Univ. of Oslo
Ingve Simonsen	2001–2002	Norwegian Univ. of Science and Technology
Olav Fredrik Syljuåsen	1999–2006	Univ. of Oslo
Susanne Viefers	1998–2000	Univ. of Oslo
Morten Hjorth-Jensen	1996–1996	Univ of Oslo
Bjarte Kileng	1994–1996	Bergen University College
Per Lilje	1989–1992	Univ. of Oslo
Carsten Lütken	1989–1991	Univ. of Oslo
Sigurd Sannan	1987–1990	SINTEF, Trondheim
Henning Knutsen	1986–1987	Univ. of Stavanger
Bo Sture Skagerstam	1983–1984	Norwegian Univ. of Science and Technology
Jan Myrheim	1981–1983	Norwegian Univ. of Science and Technology
Per Amund Amundsen	1980–1981	Univ. of Stavanger
Jon Magne Leinaas	1978–1980	Univ. of Oslo
Per Osland	1976–1980	Univ. of Bergen (retired)
Paul Papatzacos	1975–1977	Univ. of Stavanger
Jan Finjord	1974–1976	Univ. of Stavanger
Finn Ravndal	1974–1976	Univ. of Oslo (retired)
Jan S. Vaagen	1972–1973	Univ. of Bergen
Eivind Osnes	1967–1969	Univ. of Oslo (retired)
Iver Brevik	1966–1968	NTNU
Ingolf Kanestrøm	1961–1965	Univ. of Oslo
Kristofer Kolltveit	1961–1963	Univ. of Bergen (retired)

Table 56: Alumni now in academic positions in *Sweden*

Name	year at Nordita	employed today
Annica Black-Schaffer	2009–2011	Uppsala Univ.
Eddy Ardonne	2007–2012	Stockholm Univ.
Tobias Ambjörnsson	2003–2006	Lund Univ.
Martin Nilsson Jacobi	2003–2004	Chalmers Univ. of Technology
Petter Minnhagen	2002–2005	Univ. of Umeå (retired)
Mats Granath	2002–2003	Gothenburg Univ.
Svante Jonsell	2000–2002	Stockholm Univ.
Michael Hörnquist	2000–2001	Univ. of Linköping
Mattias Wahde	1997–1999	Chalmers Univ. of Technology
Leif Lönnblad	1995–1997	Lund Univ.
Dan Kiselman	1993–1994	Stockholm Univ.
Johan Bijnens	1992–1997	Lund Univ.
Jari Kinaret	1992–1994	Chalmers Univ. of Technology
Marek Abramowicz	1990–1994	Chalmers Univ. of Technology
Hans Weber	1990–1991	Luleå Univ. of Technology
Kjell Olofsson	1988–1990	Uppsala Univ.
Bengt Gustafsson	1987–1989	Uppsala Univ. (retired)
Jørgen Rammer	1984–1986	Umeå Univ.
Claes-Ingvar Björnsson	1983–1985	Stockholm Univ.
Bo Söderberg	1983–1985	Lund Univ.
Sven Åberg	1980–1984	Lund Univ.
Thors Hans Hansson	1979–1981	Univ. of Stockholm
Claes Fransson	1978–1980	Univ. of Stockholm
Bo Jakobsson	1977–1979	Lund Univ. (retired)
Christoph Bargholtz	1976–1977	Stockholm Univ. (retired)
Ingemar Ragnarsson	1972–1975	Lund Univ.
Bengt Pettersson	1971–1971	Lund Univ.
Jouko Mickelsson	1970–1972	KTH Royal Inst. of Technology (retired)
Bengt E. W. Nilsson	1969–1973	Chalmers Univ. of Technology
Gösta Gustafson	1969–1972	Lund Univ.
Lars Söderholm	1967–1969	KTH Royal Inst. of Technology
Håkan Snellman	1966–1968	KTH Royal Inst. of Technology (retired)
Johan Nyberg	1965–1967	Uppsala Univ.
Jan Blomquist	1964–1966	Stockholm Univ. (retired)
Bengt Enflo	1964–1966	KTH Royal Inst. of Technology
Börje Johansson	1964–1966	Uppsala Univ.

Annex 3

2015-01-30

Guidelines for the assessment of the Nordic co-operation bodies (peer review) to be used by the Panel of Experts

1. Background and Framework of the assessment

NordForsk (www.nordforsk.org) is an organisation under the Nordic Council of Ministers (www.norden.org), the formal body for co-operation between the governments of the five Nordic countries Denmark, Finland, Iceland, Norway and Sweden. NordForsk works with funding of research and research infrastructure co-operation (including researcher education), within areas of specific importance to the Nordic countries.

In spring 2015, NordForsk is organising an assessment of the scientific quality and relevance of the following five research institutes (called "Nordic co-operation bodies"):

- Nordic Institute for Theoretical Physics (NORDITA), located at KTH/Stockholm University
- Nordic Institute of Asian Studies (NIAS), located at the University of Copenhage
- Former Nordic Sámi Institute (NSI), located at the Sámi University College in Kautokeino
- Nordic Volcanological Centre (NORDVULK), located at the University of Iceland
- Nordic Institute for Maritime Law (NIfS), located at the University of Oslo

The assessment is part of a broader strategic analysis of Nordic university co-operation, which will include identifying appropriate mechanisms for co-operation between universities in the Nordic countries and redistribution of competitive Nordic research funds. The results of the assessment will be used to assess the quality and relevance of the five co-operation bodies within Nordic university co-operation. Decisions on possible future funding will be made through a separate process.

The process is overseen by a special advisory group, consisting of members from all the Nordic countries. Members of the group will participate at the assessment meetings and report back to NordForsk and the Nordic Council of Ministers on the process and main conclusions of the assessment. Secretariat and facilitating services during the assessment will be provided by Gaia Consulting Oy (www.gaia.fi) .

2. The role of the peer reviewers

The assessment of scientific quality and relevance is performed by international and multidisciplinary panels of peer reviewers, one for each co-operation body, and each panel consisting of three reviewers. Peer reviewers have been selected among esteemed international experts within the fields of research of each of the five Nordic co-operation bodies.

Peer reviewers are expected to use their expertise to assess the scientific quality and relevance of the Nordic co-operation body within its own field of research, in a Nordic and international context.

The main question is to find out how added value has been created through the co-operation and what the role and status of the Nordic co-operation bodies are in the Nordic region/internationally.

Peer reviewers are requested to elaborate on the questions listed in the annex to these guidelines (annex 1).

The final assessment report for each of the five Nordic co-operation bodies will be published, including the names of the peer reviewers.

3. The assessment procedure

The assessment will be made during spring 2015 and finalized by June 2015. The assessment consists of the following three steps:

- assessing written material
- attending a review meeting at the site of research (site visit)
- together with the other reviewers, compiling a joint peer review report about the research activities of the Nordic co-operation body

3.1. Material for the assessment

The following material will be available for peer reviewers:

- A Fact Sheet compiled by the Nordic co-operation body, containing facts from the past five years on main research related activities (staff, publications, main research projects, researcher training, visiting researchers, infrastructure etc.)
- Self-assessment of the Nordic co-operation body with reflections on their role and status as a Nordic co-operation body and internationally, their stakeholder relations, etc.
- General information (web page), central strategy documents, and latest annual reports (past five years) of the Nordic co-operation body
- Other recent evaluations (if any) of the Nordic co-operation body and/or its host institution, or evaluations of the scientific disciplines represented by the co-operation body in the Nordic countries, may be consulted in the assessment, where relevant

Reviewers will be provided with the complete set of written material in the beginning of March.

3.2. Review Meeting

A whole-day review meeting, including site visit, will be held between the peer reviewers, the Nordic co-operation body and members of the special advisory group, which oversees the

process. At the meeting, the panel is expected to discuss and form a joint opinion on the main assessment questions (annex 1).

The meeting dates will be agreed separately with each Nordic co-operation body.

3.3. Compiling the assessment report

After the meeting, the panel will finalise a brief joint report (approx. 5 pages) summarizing their views on each of the main assessment questions given (annex 1). If possible, the report should be finalised on the site after the meeting (e.g., the following morning), or alternatively by e-mail within two weeks after the meeting.

The secretariat of the special advisory group and expert consultants from Gaia Consulting will participate at the meeting, facilitate the process and aid the reviewers in compiling the report during the meeting, if needed.

4. Confidentiality

By accepting to partake in the assessment, reviewers consent to the general confidentiality principles, used by NordForsk:

No information received during the assessment process will be made public. Documents should therefore be handled and stored with due care and confidentiality.

Reviewers are not allowed to disclose any information concerning the assessment to outsiders, nor to use the confidential information to own benefit or anyone else's benefit or disadvantage. If you are contacted by anyone who has questions about the assessment, please advise them to contact NordForsk.

Once the evaluation has been completed, you are required to destroy all documents and any copies made of them, or return them to NordForsk. Confidentiality must also be maintained after the assessment process has been completed.

The final joint report of the peer reviewers – including the names of the peer reviewers - will be published as part of the final assessment report.

5. Conflicts of Interest

NordForsk follows the Norwegian guidelines for impartiality and conflicts of interest.

According to these guidelines, experts should abstain from assessing a case

a) if he himself or she herself is party to the case
b) if he or she is related by blood or by marriage to a party in direct line of ascent or descent, or collaterally as close as a sibling

c) if he or she is or has been married or engaged to, cohabitant with or the registered partner or a party, or is the foster parent of foster child of a party
d) if he or she is the guardian or agent of a party to the case or has been the guardian or agent of a party after the case began
e) if he or she is the head of, or holds a senior position in, or is a member of the executive board or the corporate assembly of a public or private institution that is a party to the case
f) if he or she is, within the last three years has served as, the doctorate-level advisor for a party to the case
g) if he himself or her herself is a party to the case in direct competition with the case being processed.

If you have had recent close co-operation or joint publications with any of the parties being assessed, you are kindly requested to contact the secretariat immediately so that we can assess whether you should abstain from the evaluation.

All experts are requested to sign a Declaration concerning impartiality and confidentiality (annex 2). Kindly sign the declaration and return it to the address below, or bring it to the panel meeting.

6. REIMBURSEMENT

Travel and meeting costs of experts will be reimbursed (travel costs should be kept within reasonable limits). Peer reviewers will receive a honorarium approximating to 1200 EUR for the work, to cover for any additional costs directly related to the work. No additional per diems are paid.

CONTACT PERSONS

All enquiries of reviewers should be directed to:

Susanna Sepponen
susanna.sepponen@gaia.fi
+358 40 138 00 67

Enclosed documents:

Annex 1 Questions for peer reviewers
Annex 2 Declaration concerning impartiality and confidentiality

ANNEX 1 QUESTIONS FOR THE PEER REVIEWERS

Main questions:

1. **What is the significance of the Nordic co-operation body in terms of scientific results in its field in the Nordic region and internationally?** Can the Nordic co-operation body be seen as a "Nordic hub" in its field?
2. **How is added value created** through the Nordic and international co-operation? What has worked well / less well?

Under the two main questions, please elaborate among other things on the following aspects:

- How would you define the academic field of the Nordic co-operation body? How would you describe the major developments that have taken place in the field over the years?
- What are the main activities of the Nordic co-operation body? Which are its strengths and weaknesses?
- Which are the main achievements of the Nordic co-operation body (ref. to the fact sheet for research results, merits, training, infrastructure etc.)
- What is the international position and impact of the Nordic co-operation body today within its field (in terms of Nordic, European and global contexts)?
- Are the contributions made by the Nordic co-operation body unique for the field?
- From a future point of view, how relevant are the current research foci (as defined by itself) of the Nordic co-operation body for the field?
    - Has the research focus of the Nordic co-operation body developed/changed during the past years and in what directions?
    - Do the strategies of the institute focus on future research challenges?
    - Are there other contemporary developments in the field that are equally interesting/more interesting than the topics the Nordic co-operation body is focusing on?
- What is the Nordic profile of the Nordic co-operation body today:
    - What makes it a Nordic institution (as opposed to being a national institution). What are the benefits of being a Nordic co-operation body?
    - How does the way in which the co-operation is organised (relations with the host institution, main partners and stakeholders) support the scientific role of the Nordic co-operation body in Nordic, European, and global contexts?
    - Does the co-operation cover the relevant scientific partners?
- How would you describe the potential of the Nordic co-operation body to further increase its role in Nordic, European and global contexts?
    - How do the strategic priorities for the following years reflect the ambitions of the Nordic co-operation body
    - Is there documented ability to attract external funding and what are the future perspectives in this respect?

Guidelines on Impartiality in NordForsk

1.0 Purpose

These guidelines are made to ensure that NordForsk employees, experts and members of the institutions governing and advisory bodies remain impartial and are perceived as being impartial. Furthermore, these guidelines are designed to promote confidence in decisions made by NordForsk.

The Norwegian Public Administration Act, chapter II *"Concerning disqualification"* applies to all employees, experts and members of the governing and advisory bodies of NordForsk. These rules have been adapted to the needs of NordForsk, and are as follows:

2.0 Disqualification based on discretionary assessment

An employee, expert or member of governing and advisory bodies of NordForsk shall be disqualified from preparing the basis for a decision or from making any decision in a case if there are any special circumstances which are apt to impair confidence in his or her impartiality.

Any of the abovementioned individuals shall be well aware of the fact that nationality shall not influence on their decisions concerning applications.

3.0 Automatic disqualification

An employee, expert or member of governing and advisory bodies of NordForsk shall automatically be disqualified from preparing the basis for a decision or from making any decision in a case

a) if he himself or she herself is party to the case
b) if he or she is related by blood or by marriage to a party in direct line of ascent or descent, or collaterally as close as a sibling
c) if he or she is or has been married or engaged to, cohabitant with or the registered partner or a party, or is the foster parent of foster child of a party
d) if he or she is the guardian or agent of a party to the case or has been the guardian or agent of a party after the case began
e) if he or she is the head of, or holds a senior position in, or is a member of the executive board or the corporate assembly of a public or private institution that is a party to the case
f) if he or she is, within the last three years has served as, the doctorate-level advisor for a party to the case
g) if he himself or her herself is a party to the case in direct competition with the case being processed.

Opprettet 19.04.2007 15:33:00

Comment to disqualification due to competition:
A key criterion in the concrete assessment of disqualification due to competition will be whether the rejection of one or a small number of competing grant applications would substantially improve the likelihood of approval of the application that is the object of the impartiality discussion, i.e. whether the member involved has any special interest in the rejection of certain other applications. The degree to which the disqualification will apply in relation to the entire group of applications must be clearly specified.

If a NordForsk employee is disqualified, the case may not be decided by any employee directly subordinate to the disqualified individual. If the Director is disqualified, the case shall be decided by a group of employees among the Senior Advisors. In special circumstances the case shall be decided by the Chair of the Board or whom she or he delegates.

Every effort should be made to assess impartiality on a discretionary basis. Such assessment should primarily be focused on whether special circumstances exist that could impair confidence in a member's impartiality. In other words, the crucial element here is not whether there is reason to believe that an individual will act in a non-impartial manner, but whether confidence in this individual is likely to be diminished. It is on the basis of how this will be perceived by the parties involved, as well as by the public at large, that the assessment must be carried out.

The Norwegian Research Council has made a List of topics/Examples to illustrate relevant problems regarding impartiality, which might be helpful in efforts to assess matters relating to impartiality. This list can be found on www.forskningsradet.no.

4.0 Declaration on impartiality and confidentiality

NordForsk's employees, experts and members of governing and advisory bodies must sign a declaration concerning impartiality and confidentiality.

5.0 Administrative proceedings

The individual employee, expert referee and member of NordForsk's governing and advisory bodies shall give notice to NordForsk of any circumstances that render or may render him/her disqualified.

With regards to the question of disqualification of any of the abovementioned, the decision will be determined by the Director of NordForsk in dialogue with the person involved. The Director may delegate this decision to other employees at NordForsk.

The agenda for all relevant meetings shall include a discussion of matters relating to members impartiality. The minutes from the meeting shall indicate in brief that the question of disqualification appeared on the agenda, which issues have been discussed and the final decisions taken.

In the event that a member is deemed disqualified to participate in a matter, her or she shall leave the room during the preparation and completion of the relevant case(s).

Annex 4

NordForsk

Stensberggata 25
NO-0170 Oslo
Tel +47 476 14 400
www.nordforsk.org

Agenda for the assessment meeting at the Nordic Institute for Theoretical Physics (NORDITA)

Time: 23 April 2015 at 09:00-16:30

Venue: NORDITA, Roslagstullsbacken 23, 106 91 Stockholm, Sweden. Venue: 132; 028

Morning session:

9:00-09:30 Welcome and Joint briefing: Director of NORDITA and other key staff; University representatives; the Panel of Experts, members of the Special Advisory Group to NordForsk, Gaia Consulting

Parallel sessions:

	Panel of Experts	**Nordforsk's Advisory Group**
9:30	Director Katherine Freese and Deputy Director Axel Brandenburg	Permanent Faculty and Head of Admin
10:15		Nonpermanent Faculty and Fellows
10:45	Coffee break	Coffee break
11:00	Permanent Faculty	Director and Deputy Director

Lunch 12-13

Afternoon session:

13:00	Non-permanent Faculty and Fellows	Representatives of Universities
13:45	Nordita Board and Nordic faculty who were former Nordita Fellows	
14:15	Time for Internal Discussion of Panel	
15:00		Nordita Board and Nordic Faculty who were former Nordita Fellows

15:30 Coffee Break and Wrap-Up with everybody

16:00 Internal Discussion between Panel of Experts and Nordforsk's Advisory Group

NordForsk

Stensberggata 25
NO-0170 Oslo
Tel +47 476 14 400
www.nordforsk.org

Participants:

NORDITA:

Professors

Axel Brandenburg, Deputy director

Alexander Balatsky

Katherine Freese, Director

Konstantin Zarembo

Professor emeritus

Paolo Di Vecchia

Non Permanent professors at Nordita

David Abergel

Ralf Eichhorn

Tomi Koivisto

Dhrubaditya Mitra

Nordita Fellows

Lars Mattsson

Matin Mojaza

Jonathan Edge

Nordita faculty who were former Nordita fellows

Eddy Ardonne, Stockholm university

Annica Black-Schaffer, Uppsala university

Yasser Roudi, NTNU. Trondheim

NordForsk

Stensberggata 25
NO-0170 Oslo
Tel +47 476 14 400
www.nordforsk.org

Board members

Kalle-Antti Suominen, Chair, University of Turku

Susanne Viefers, Oslo university

Asle Sudbø , NTNU

Måns Henningson , Chalmers

Gunnlaugur Björnsson, University of Iceland

Ulf Wahlgren, Nordita

Mikko Alava, Aalto university

Olle Eriksson, Uppsala universitet

Marianne Persson-Söderlind, Head of Administration

Helle Kiilerich, Nordita/NBI, Copenhagen

University of Stockholm and KTH:

Peter Gudmundson, Rector KTH

Arne Johansson, Vice rector KTH

Astrid Söderbergh-Widding, Rector SU

Anders Karlhede, Vice rector SU

Panel of Experts:

Professor Ignatios Antoniadis, Theory Division at CERN, Geneva

Professor Sandra Chapman, Centre for Fusion, Space and Astrophysics,
Physics Department, University of Warwick,

Professor Gordon Semenoff, University of British Columbia (UBC), Vancouver, Canada

Special Advisory Group to NordForsk:

Krista Varantola, Chair

Jens Oddershede

Gaia Consulting:

Ida Rönnlund

Susanna Sepponen

Annex 5

NORDITA

The Nordic Institute for Theoretical Physics

May 13, 2015

Dear Members of Nordforsk,

We at NORDITA have received and read the assessment report resulting from the visit on April 23, 2015, of the Panel of Experts and Advisory Board to Nordforsk. We find the report very helpful. We are encouraged by the recognition of the value of NORDITA both to the scientific world and the Nordic world, and we also intend to follow up on the excellent recommendations for future development. The suggestion of enhancing Nordita with more joint appointments with other universities in the Nordic countries is something we plan to actively pursue. We are extremely grateful to the Panel of Experts and the Advisory Board for their work in assessing our institute.

Yours,

Katherine Freese
Director of Nordita
Roslagstullsbacken 23
Stockholm 10691
Sweden

NordForsk, 2014
Stensberggata 25
N–0170 Oslo
www.nordforsk.org