

March 24, 2009

NORDITA in Stockholm

A status report on the establishment of Nordita in Stockholm and planned future activities, prepared for the *Evaluation of the Objectives, Activities, and Future Prospects of Nordita* commissioned by NOS-N, the Joint Committee of the Nordic Natural Science Research Councils.

1. Background

Nordita was founded in 1957 as the Nordic Institute for Theoretical Atomic Physics on the premises of the Niels Bohr Institute at Copenhagen University. 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 theoretical and computational research over a broad range of physical sciences including astrophysics, condensed matter and materials physics, biological physics, statistical physics and complex systems, subatomic physics, cosmology, and gravitational theory.

Until 2006, Nordita was financed by and organized directly under the Nordic Council of Ministers (abbreviated NMR for Nordisk Ministerråd). Following a decision to transfer all research institutes, including Nordita, from under the NMR and place them under Nordic host universities, it was decided in 2006 that Nordita would be relocated to Stockholm under the auspices of Stockholm University (SU) and the Royal Institute of Technology (KTH). The move from Copenhagen to the AlbaNova University Centre, a joint venture of SU and KTH situated in the immediate vicinity of the two universities, took place on January 1, 2007. Nordita continues to have a presence in Copenhagen as some of the senior academic staff chose to remain at the Niels Bohr Institute and continue their research there.

In the terms of reference for the evaluation, provided by NOS-N, Nordita is asked to provide a status report with an assessment of:

- a) *whether the relocation and re-structure is well in progress,*
- b) *the satisfaction of the functioning of the organisation and the daily management,*
- c) *the satisfaction of the scientific deliverables.*

The following sections address each of these items in turn.

2. Relocation and restructuring

Nordita moved to the AlbaNova University Centre in Stockholm on January 1, 2007. During the months leading up to the move from Copenhagen a plan for the establishment of Nordita in Stockholm was developed taking into account the contract between NMR and KTH/SU for the period 2007 – 2009 and assuming stable funding

levels beyond that period. The establishment plan also took into account anticipated retirements of senior academic staff in the period 2008 – 2013. The build-up in Stockholm has largely followed this plan.

Our overall assessment is that the relocation has been successful. After just over two years in Stockholm, Nordita is operating with almost full academic staff engaged in research across a wide range of physics, a vigorous schedule of scientific programs covering an even broader spectrum of scientific activity, and a vibrant visitor program. Nordita has integrated well with the local environment while preserving its own identity and distinct international character. The administrations of the local universities have been supportive during the build-up period and are generally responsive to the needs of Nordita. The rapid growth of the institute, which has been accelerated by substantial external grant income, is already placing pressure on the housing provided at the AlbaNova centre. This needs to be addressed in both the short and the long run.

Funding considerations

According to the above-mentioned contract, Nordita receives 10,000,000 DKK/year from NMR (approximately 1,350,000 €) and 10,000,000 SEK/year from SU/KTH (approximately 900,000 € at current exchange rates) in the three-year period 2007 – 2009. The host universities cover housing and associated infrastructure expenses. In addition, Nordita is exempt from university overhead charges.

At present, there is no guarantee of funding beyond the end of 2009 but the institute has sufficient reserves to continue its operations through 2010. A new contract with NMR, covering the period 2010 – 2013, has to be negotiated and the future level of financing from the local host universities has to be decided. The establishment plan assumes that a substantial financial contribution will be provided by funding agencies in the five Nordic countries. However, Nordita and other Nordic research institutes do not fit easily into existing national grant structures and an alternative funding mechanism needs to be developed. Meetings have been conducted with all the Nordic research councils on the future of Nordita as a joint Nordic research infrastructure. No firm commitments have been made yet but further discussions are planned.

Academic staff

Current academic staff members are listed in Appendix A below. Nordita is led by a Director, nominated for a three-year term by the Nordita Board and appointed by the presidents of the host universities. The duties of the Director are evenly divided between research and administration. Professor Ulf Wahlgren of Stockholm University, and Director of the AlbaNova University Centre, served as interim Director of Nordita July 2006 – June 2007 and continued as Vice Director from that time. Professor Risto Nieminen of Helsinki University of Technology was Director July 2007 – June 2008. The current Director, Professor Lárus Thorlacius, came from the University of Iceland in July 2008.

In 2006, Nordita had five full-time professors in Copenhagen: Axel Brandenburg, Paolo Di Vecchia, John Hertz, Alan Luther, and Christopher Pethick. Only Axel Brandenburg moved with Nordita to Stockholm full-time. He is formally appointed as a professor of astronomy at Stockholm University but is on an indefinite leave of absence to work at Nordita. Paolo Di Vecchia and John Hertz are based in Copenhagen but spend about ¼

of their time in Stockholm. Christopher Pethick visits Nordita in Stockholm but works in Copenhagen. Alan Luther remained in Copenhagen and retired at the end of 2008.

A new tenured professorship at Nordita in Stockholm was announced with a November 3, 2008 application deadline. The fifty applications that were received are being evaluated by a panel of international experts with a view towards filling the position later this year. A second tenured professorship is to be announced within the next two years. This will bring the number of tenured professors employed at Nordita in Stockholm to three, which is the long-term goal set in the establishment plan.

At any given time, Nordita in Copenhagen had four to six assistant professors. These were fixed term (3+3 year) positions with no option of tenure following the second three-year term but historically, Nordita assistant professors have an excellent track record of securing tenured positions following their time at Nordita. This tradition is continued at Nordita in Stockholm with five-year fixed term assistant professorships. Four such positions have already been filled and the fifth one was announced in late 2008. The 84 applications that were received have been evaluated and interviews of leading candidates are planned for late March 2009. The establishment plan sets a long-term goal of five assistant professorships and this is close to being met already.

Finally, the establishment plan calls for having ten Nordita post-doctoral fellows in residence at any given time. Presently they are nine but the number will increase to ten later in the year when four new Nordita fellows will replace three fellows coming to the end of their two-year terms. There is a strong Nordic contingent among the current Nordita fellows. Four are Nordic citizens (Collin, Horsdal, Larsson, and Samuelsson) and a fifth (Chialva) came to Nordita following a post-doctoral appointment at Uppsala University.

External grants

Nordita faculty are encouraged to seek funding from outside sources. For the most part, grants to individual investigators supplement the funds from NMR and the local host universities in the sense that such grants only cover direct costs arising in connection with specific research projects. They are not intended as funding for the basic research infrastructure at the institute. On the other hand, external grants are an important tool for strengthening particular lines of research at Nordita and to thrust into new directions.

In August 2008, Axel Brandenburg was awarded an Advanced Investigator Grant from the European Research Council for his project *Astrophysical Dynamos* (AstroDyn). The grant is for a total of 2,220,000 € over five years and enables Axel Brandenburg and Nordita to build a sizable research group and have an even stronger presence in this important area of astrophysical theory than in previous years. The AstroDyn funding is separate from the rest of the Nordita budget and allows a significant increase in the research activities at the institute.

Axel Brandenburg has also received grants from the Swedish Research Council, the European Science Foundation, and from the Wenner-Gren Foundation.

Paolo Di Vecchia has received funding from the Marie Curie programme of the European Commission on several occasions. Most recently, Nordita was one of the nodes in the RTN network “Constituents, Fundamental Forces, and Symmetries of the

Universe”, which ran from 2004 to 2008 and provided travel funds and support for a post-doctoral fellow based in Copenhagen.

A post-doctoral fellow supported by the Leopoldina Academy in Germany is currently working with Christopher Pethick in Copenhagen and he had another post-doctoral fellow working with him in 2007 supported by funds from the Japanese Society for the Promotion of Science.

Nordita is supporting a post-doctoral fellow in high-energy theory from a grant awarded to L arus Thorlacius by the Icelandic Research Fund and a PhD student supported by funds from the University of Iceland.

Ulf Wahlgren has been awarded grants from the Swedish Research Council, and grants from the Swedish Nuclear Fuel and Waste Management Company for a post-doctoral fellow.

Housing and facilities

When Nordita was established in Stockholm in January 2007, a building on the campus of the AlbaNova University Centre was placed at its disposal. The building was originally constructed as part of a hospital but it suits the purposes of a research institute in theoretical physics quite well. Being in a separate building puts a distance between Nordita and the remaining physics activities at AlbaNova, which can be a disadvantage, but at the same time it bolsters the separate identity of Nordita and contributes to its independence. The institute has already outgrown its building. It is now also occupying half of a neighbouring house, which is a former hospital building of similar construction, and more housing will be needed within the next year. It is not optimal to divide the academic staff of a relatively small institute like Nordita up into separate buildings and this is only a temporary solution. Long-term housing plans at KTH and SU include substantial new construction in an open area immediately to the north of the main AlbaNova building. Future housing for Nordita is included in those plans and is expected to be ready in six to seven years from now. It is very important for Nordita to be able to influence the design of its new housing to ensure that it suits the particular type of scientific activity carried out at the institute and contributes to a sense of independent identity.

3. Organization and daily management

Nordita is a research centre for theoretical physics in a wide sense, with a core activity of high-level research in several branches of theoretical physics, supplemented by scientific programs, workshops, advanced schools, and an international visitor program. A vigorous program of research at the forefront of physics forms the basis for the long-term reputation and impact of the institute. Having internationally recognized senior staff is key to successful hiring into junior positions and serves to attract high-level researchers to scientific programs and other research activities. At the same time, the various supplemental activities enable Nordita to contribute to research into theoretical problems across a wide range of subjects going beyond the traditional boundaries of theoretical physics and beyond the relatively small number of “in-house” research staff. These activities are an important service to the scientific community in the Nordic countries and beyond. In fact, the growing importance of collaborative activities, like the scientific programs run at Nordita, is widely recognized in theoretical physics. Program type activities are conducted at a number of centers worldwide, such as the KITP at UC

Santa Barbara, the Isaac Newton Institute at Cambridge University, the Institute for Nuclear Theory at the University of Washington, the KITPC at the Chinese Academy of Sciences, and the Galileo Institute in Florence, Italy, to name a few.

The contract between NMR and the host universities in Stockholm emphasizes the international character of Nordita and ensures a central role for representatives of the five Nordic countries in the administration of the institute. The contract also gives considerable independence for Nordita to develop its own strategy and to execute policy. Nordita is administratively under the central administration of KTH and must adhere to laws governing Swedish universities and to KTH regulations, but otherwise the institute is largely free to manage its own affairs.

Nordita has a governing Board, appointed jointly by the Presidents of KTH and SU, 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, approving the annual budget, and deciding appointments of scientific staff following an agreed-on procedure with the host universities.

The Board nominates a Director, who is appointed by the presidents of SU and KTH. The Director is responsible for the day-to-day administration of the institute and provides scientific leadership. The Board has also appointed a Vice Director to work with the Director and act as liaison to the local host universities during the build-up phase in Stockholm.

In addition to the Nordic governing Board, the Nordic physics community provides direct input into Nordita's scientific activities through three Research Committees, each of which has five Nordic physicists and one Nordita faculty member working in the area in question. The three committees are Astrophysics/Astrobiology, Condensed Matter/Biological Physics, and Subatomic Physics. The tasks of the Research Committees include evaluating post-doctoral fellowship applications and scientific program proposals, and providing expert advice in their respective areas.

Nordita also has a Scientific Advisory Committee (SAC) of prominent scientists from the international physics community. Since its formation in 2007, the SAC has visited Nordita twice, in August 2007 and 2008, and met with academic and administrative staff along with members of the Nordita Board. At these meetings, the SAC has reviewed and commented on a wide range of issues concerning Nordita in Stockholm and provided valuable input into Nordita's research strategy and future plans. Committee members have also been consulted between meetings via e-mail.

Members of the Nordita Board, the Scientific Advisory Committee, and the three Research Committees are listed in Appendix B.

Administrative staff

In addition to the Director (50% administrative duties) and Vice Director (a 50% position including both administration and research), Nordita employs two full-time administrators in Stockholm. The chief administrator of the institute is responsible for personnel matters, manages expense accounts, and provides administrative support to

the Director and academic staff. The second administrator works mainly with the scientific programs and workshops, arranging housing and providing administrative support to program participants and other visitors. Nordita scientific programs and workshops are described more fully in the following section on scientific deliverables. As part of the relocation to Stockholm, Nordita was placed under the central administration of KTH where the institute receives various administrative services, including salary processing and accounting.

A significant part of the research carried out at Nordita relies on numerical calculations and access to fast and reliable computing facilities is crucial. The institute supplies staff with desktop and/or laptop units for routine computer work and several, more powerful machines have been purchased for heavier numerical tasks. For large-scale parallel computing, CPU time has been obtained at supercomputer centres. Two members of the system management group of Fysikum, the physics department at Stockholm University, work part-time (25% each) at Nordita providing computer support. One is primarily involved in system development and network management while the other handles IT support and is responsible for the institute homepage.

Members of the administrative staff at Nordita are listed in Appendix A. We note that there are fewer administrative personnel at Nordita in Stockholm than previously in Copenhagen. Additional administrative support is, however, needed to keep pace with an expanding academic staff, including the new AstroDyn group, and existing plans to increase scientific program activities to ten program-months per year. We are therefore looking to hire a third administrator, most likely a financial officer, later in the year and to increase the computer personnel to the equivalent of a full-time position (from the current 50% level). Immediate needs for additional support have been met by hiring student assistants on a per-hour basis for up to 8 hours per week. Currently there are three student assistants carrying out various tasks, ranging from preparing program web pages to making coffee at workshops, alongside their physics studies at the AlbaNova centre.

Our assessment is that the organization of Nordita is well suited to its goals. The administrative structure of the institute is set up to facilitate both the core research program and the various supplemental activities. Currently Nordita invests about $\frac{3}{4}$ of its financial resources in academic and administrative staff and about $\frac{1}{4}$ goes to the various supplemental activities. These levels will be reviewed with time as Nordita becomes fully established in Stockholm and in response to changes in its funding environment. The build-up of the academic staff in Stockholm and increasing program activities call for a modest increase in administrative support. The Nordic governing Board and the Research Committees provide direct influence from the Nordic physics community on all Nordita policies. The Scientific Advisory Committee provides further international input.

4. Scientific deliverables

Research at Nordita

Nordita is a Nordic research centre for theoretical physics in a wide sense. The centrepiece of Nordita's research program is carried out by the long and medium term academic staff. At present astrophysics, astrobiology, cosmology, biological physics, statistical physics/complex systems, condensed matter physics, nuclear physics, high-energy physics, and mathematical 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. This includes collaboration on research projects, co-supervising graduate students, organizing joint seminars and colloquia, and more. While there is no teaching requirement at Nordita, its faculty members regularly teach advanced graduate courses at the local universities.

A brief synopsis of the scientific background and main areas of research of individual researchers at Nordita is provided to the Evaluation Committee in a separate document. A list of publications in the past five years by current Nordita staff members is also provided.

This backbone research activity is supplemented by five basic concepts: *research themes, scientific programs, Nordic networks, workshops and symposia, and a visiting scientist program.*

Research themes define certain research priorities, which can for example serve as guidelines for recruitments. Research themes are decided by the Nordita Board with input from the Nordic scientific community and from the Scientific Advisory Committee. The ERC Advanced Grant to Axel Brandenburg has established magneto-hydrodynamics and dynamo theory as a research theme at Nordita during the next five years.

In a *scientific program*, a group of scientists comes together to work on a specific area of research for an extended period. Nordita provides facilities and administrative support for program participants and in many cases, Nordita academic staff is actively engaged in the organisation and execution of program activities. Up to 25 participants can be accommodated at any given time. This typically includes a core of eight to twelve internationally recognized leaders in the subject area of the program who are invited to participate. Otherwise, the programs are open in the sense that any member of the scientific community can apply. The programs provide an opportunity for junior researchers to interact with leading scientists in a given field and some number of post-doctoral fellows and PhD students is included in each program. Although there are no quotas, the level of Nordic participation in Nordita programs has been high.

Usually two or three principal investigators are responsible for coordinating a program. The international scientific community is invited to suggest programs once a year. Program proposals are reviewed by Nordita's research committees and decided by the Nordita Board. The first scientific program was run in August and September 2007 and following the latest round of proposals the schedule of programs has been decided through the first half of 2011. Appendix C contains a complete list of Nordita scientific programs, including future ones. Many of the programs are in areas of research that Nordita academic staff members are actively working on but a significant number of programs cover other areas. The scientific program activities thus enable Nordita to reach out to a larger community of theoretical physicists than would otherwise be possible.

We feel that the scientific programs have generally been successful in bringing together diverse groups of scientists and providing a stimulating atmosphere for research. On the practical side, we keep costs in check by long-term rental of small apartments for the use

of program participants rather than relying on Stockholm hotels. The apartments are also used for other visitors to Nordita whenever possible.

Nordic networks are intended to co-ordinate efforts in particular research areas within the Nordic region. Nordic network activities can for example involve a series of Nordita workshops or programs in a particular area of research, or co-ordinated visits to Nordita by network participants. Normally a Nordic network is coordinated by a member of the Nordita faculty in collaboration with researchers at Nordic universities. The long-standing Nordic network in string and gauge theory that Paolo Di Vecchia coordinates is an example of a successful activity of this type. 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 community. It has in fact attracted attention from outside the region with research groups in England, Germany, and the Netherlands actively participating in network meetings in recent years.

Workshops and symposia are an important part of Nordita's activities. They occur regularly throughout the year, often in connection with ongoing scientific programs, and are either organized and run by Nordita alone or jointly together with other institutes or universities. There is a long-standing tradition of Nordita advanced summer and winter schools for graduate students and postdoctoral fellows that supplement the regular graduate curriculum at Nordic universities. These schools often provide first encounters between young scientists who later go on to form long-term Nordic collaborations and networks. There are plans to run a winter school in January each year, starting in 2010, at Nordita in Stockholm. This is during an otherwise quiet period in between scientific programs and allows us to make full use of the Nordita apartments. The Nordita Master Class for advanced undergraduate students will be revived in the summer of 2009 after a few years' hiatus following Nordita's move to Stockholm.

Appendix D contains a list of the conferences, workshops and schools that Nordita has been involved in, either as the primary host or through Nordita staff involvement, since the move to Stockholm in 2007. The list does not include the conferences and workshops that have been organized within the scientific programs listed in Appendix C.

The *visiting scientist program* provides for numerous short term visits by both junior and senior researchers and enables several longer term visits each year by scientists who are actively collaborating with Nordita staff. The visitor program is essential for promoting and nurturing international contacts that strengthen ongoing activities at Nordita and it is an important conduit for bringing new ideas and new research areas to Nordita and ultimately to the Nordic region. A list of both long term and short-term visitors in 2007 and 2008 is included in Appendix E.

Appendix A Current Nordita staff

Director

Lárus Thorlacius (50% research, 50% administration), high-energy physics.

Vice Director

Ulf Wahlgren (50% position), quantum chemistry.

Professors

Axel Brandenburg, astrophysics and astrobiology,
Paolo Di Vecchia, high-energy physics (Copenhagen),
John Hertz, biological physics (Copenhagen),
Christopher Pethick, astrophysics, condensed matter, subatomic physics (Copenhagen),
N.N., expected in fall 2009.

Assistant professors (five-year, fixed term positions)

Eddy Ardonne, condensed matter physics, from fall 2007,
Ralf Eichhorn, statistical physics, from January 2009,
Stefan Hofmann, cosmology, from fall 2007 (on leave of absence from February 2009),
Jani-Petri Martikainen, cold atomic gases, from spring 2008,
N.N., high-energy physics, expected in fall 2009,
N.N., supported by AstroDyn project, expected in fall 2009.

Fellows (two-year postdoctoral positions)

Diego Chialva, high-energy physics, from January 2009,
Anssi Collin, condensed matter physics, from fall 2007,
Kristin Giesel, cosmology, from fall 2008,
Mats Horsdal, condensed matter physics, from summer 2008,
Alexander Hubbard, astrophysics, from fall 2008,
Jonas Larson, cold atomic gases, from spring 2008,
Raphaël Plasson, astrobiology, from fall 2007,
Yassir Roudi, biological physics, from fall 2008,
Lars Samuelsson, astrophysics, from fall 2007.

Collin, Plasson, and Samuelsson come to the end of their fellowships this year and four new fellows will take their place:

Annica Black-Schaffer, condensed matter physics, currently at Stanford University,
Niccolo Bucciantini, astrophysics, currently at UC Berkeley,
Valentina Giangreco, high-energy physics, currently at Uppsala University,
Paata Kakashvili, condensed matter physics, currently at Rice University.

Post-doctoral fellows and PhD students supported by external grants

Piyali Chatterjee, post-doctoral fellow, AstroDyn project, from August 2009,
Simon Candelarasi, PhD student, AstroDyn project, from February 2009,
Fabio Del Sordo, PhD student, AstroDyn project, from February 2009,
Gustavo Guerrero, post-doctoral fellow, AstroDyn project, from August 2009,
Koen Kemel, PhD student, AstroDyn project, from February 2009,
Alexander Wijns, post-doctoral fellow, Icelandic Research Fund, from October 2008,
Tobias Zingg, PhD student, University of Iceland, from October 2008.

Administrative personnel

Anne Jifält, chief administrator,
Helle Kiilerich, chief administrator (Copenhagen),
Laila Leidensten, administrator,
Iouri Belokopytov, computing and networks, (25% position),
Hans Mühlen, web and computing, (25% position).

Student assistants

Friðrik Gautason, MS student in physics, University of Iceland (exchange student at SU)
María Marteinsdóttir, MS student in physics, Stockholm University
Emma Ross, MS student in computational physics, Stockholm University

Appendix B Members of the Nordita Board, the Scientific Advisory Committee, and the Nordita Research Committees.

The Nordita Board (on January 1, 2009)

Thordur Jonsson, Chairman, University of Iceland
Poul Henrik Damgaard, Niels Bohr Institute
Anders Flodström, Swedish National Agency for Higher Education
Einar Guðmundsson, University of Iceland
Matti Manninen, University of Jyväskylä
Susanne Viefers, University of Oslo

Reserve members

Gunnlaugur Björnsson, University of Iceland
Per Osland, University of Bergen
Jørgen Christensen-Dalsgaard, University of Aarhus
Kalle-Antti Suominen, University of Turku
Sven Stafström, Linköping University

International Scientific Advisory Committee

Susan Coppersmith, University of Wisconsin
Terence Hwa, UC San Diego
Renata Kallosh, Stanford University
Graham Ross, Oxford University
Joseph Silk, Oxford University

Nordic Research Committees

Astrophysics and astrobology

Anja Andersen, Niels Bohr Institute
Gunnlaugur Björnsson, University of Iceland
Axel Brandenburg, Nordita
Øystein Elgarøy, University of Oslo
Claes Fransson, Stockholm University
Juri Poutanen, University of Oulu

Condensed matter and biological physics

Eirik Grude Flekkøy, University of Oslo
Hans Fogedby, University of Aarhus
Viðar Guðmundsson, University of Iceland
Christopher Pethick, Nordita
Stephanie Reimann, Lund University
Ilpo Vattulainen, Tampere University of Technology

Subatomic physics

Paolo Di Vecchia, Nordita
Kari Eskola, University of Jyväskylä
Gunnar Ingelman, Uppsala University
Esko Keski-Vakkuri, University of Helsinki
Charlotte Kristjansen, Niels Bohr Institute
Per Osland, University of Bergen

Appendix C Nordita Scientific Programs and program co-ordinators

The list includes future programs planned for 2009 – 2011.

August 15 – September 30, 2007

Quantum fluids

E. Babaev (KTH), H. Hansson (SU), A. Karlhede (SU), S. Viefers (Oslo), M. Wallin (KTH), F. Wilczek (MIT, Nordita)

February 1 – 29, 2008

Origins of homochirality

A. Brandenburg (Nordita), R. Plasson (Nordita)

March 25 – April 15, 2008

Turbulence and dynamos

M. Korpi (Helsinki), A. Shukurov (Newcastle), K. Subramanian (Pune, India)

May 5 – 31, 2008

Physics of distributed information systems

E. Aurell (KTH), M. Alava (Helsinki)

June 15 – July 31, 2008

TeV scale physics and dark matter

K. Huitu (Helsinki), P. Osland (Bergen)

September 15 – 27, 2008

Ice and water in the Universe (two week mini-program)

J. Wettlaufer (Yale and Nordita), A. Brandenburg (Nordita), R. Kjellander (Gothenburg)

October 1 – 15, 2008

Turbulence and oscillations in accretion discs (two week mini-program)

M. Abramovich (Gothenburg), A. Brandenburg (Nordita), P. Rebusco (MIT Kavli)

15 October – 15 December 2008

Geometrical aspects of string theory

U. Lindström, M. Zabzine, (Uppsala)

March 2 – 28, 2009

Theoretical assessment and predictions of the biological effects of nanomaterials

I. Vattulainen, E. Salonen, (Helsinki)

March 30 – April 30, 2009

Astroparticle physics: A pathfinder to new physics

J. Edsjö (SU), S. Hannestad (Aarhus), S. Hofmann (Nordita), T. Ohlsson (KTH)

May 4 – June 13, 2009

Physics of relativistic flows

J. Poutanen (Oulu), F. Ryde (SU)

June 15 – July 29, 2009

Electro-weak phase transition in the LHC era

M. Hindmarsh (Sussex), S. Huber (Sussex), K. Rummukainen (Oulu)

August 16 – September 12, 2009

Quantum Hall physics

E. Ardonne (Nordita), H. Hansson (SU), A. Karlhede (SU), S. Viefers (Oslo)

September 14 – 26, 2009

Neutron stars – the crust and beyond (two week mini-program)

L. Samuelsson (Nordita), N. Andersson (Southampton).

September 28 – October 25, 2009

Solar and stellar dynamos and cycles

A. Kosovichev (Stanford), M. Korpi (Helsinki)

November 2 – 29, 2009

Computational engineering across length and time scales

H. Ågren (KTH), K. Ruud (Tromsø), A. Laaksonen (SU)

March 1 – 26, 2010

The influence of confinement on phase transitions

B. Hjörvarsson (Uppsala), O. Eriksson (Uppsala), A. Rosengren (KTH), S.T. Bramwell (Univ. Coll. London)

April 6 – May 29, 2010

Turbulent boundary layers and turbulent combustion

A. Brandenburg (Nordita), N.E. Haugen (SINTEF), D. Henningsson (KTH), A. Johansson (KTH)

May 31 – July 9, 2010

Integrability in string and gauge theories and applications of AdS/CFT duality

L. Freyhult (Uppsala), J. Minahan (Uppsala), S. Minwalla (Tata Inst.), H. Rubinstein (SU), K. Zarembo (ENS, Paris)

July 19 – August 27, 2010

Quantum liquids, solids and gases

E. Babaev (Univ. of Massachusetts & KTH), E. Lundh (Umeå), J. Martikainen (Nordita), C. Pethick (Nordita), M. Wallin (KTH)

August 30 – September 24, 2010

Quantum matter in low dimensions: Opportunities and challenges

E. Ardonne (Nordita), H. Johannesson (Gothenburg), G. Mussardo (SISSA)

September 27 – October 29, 2010

Quantum information

M. Bourennane (SU), G. Björk (KTH), I. Bengtsson (SU)

November 1 – December 10, 2010

Random geometry and applications

B. Duurhus (Copenhagen), Z. Burda (Jagellonian Univ.)

February 28 – March 25, 2011

The return of de Sitter

A. Goobar (SU), F. Hassan (SU), S. Hofmann (LMU Munich & Nordita)

March 28 – April 20, 2011

Applications of network theory

P. Holme (KTH), P. Minnhagen (Umeå)

April 26 – May 27, 2011

Predictability + School on data assimilation

E. Lindborg (KTH), J. Nycander (MISU), A. Brandenburg (Nordita)

May 30 – June 25, 2011

String phenomenology

M. Berg (SU), P. Di Vecchia (Nordita)

For more information on Nordita Scientific Programs see the AlbaNova on-line information system <http://agenda.albanova.se/categoryDisplay.py?categId=270>

Appendix D Conferences, workshops, and schools 2007 – 2009

The list does not include workshops and conferences held in connection with the scientific programs listed in Appendix C.

February 15 – 17, 2007

21st Nordic network meeting on “Strings, fields, and branes”

P. Di Vecchia (Nordita)

May 9 – 11, 2007

New trends in radiation hydrodynamics

A. Brandenburg (Nordita), G. Mellema (SU), A. Nordlund (NBI), J. Poutanen (Oulu), G. Scharmer (SU), E. Spiegel (Columbia Univ.)

June 11 – 20, 2007

Cosmology, strings, and phenomenology

L. Bergström (SU), U. Danielsson (Uppsala), A. Goobar (SU), A. Mazumdar (Nordita)

July 15 – 18, 2007

Statistical mechanics of distributed information systems

M. Alava (Helsinki), E. Aurell (KTH), J. Hertz (Nordita), S. Kirkpatrick (Hebrew Univ., Jerusalem), S. Krisnamurthy (SICS, Stockholm)

August 14 – 17, 2007

Pencil Code user meeting

A. Brandenburg (Nordita), B. Dintrans (Observatoire Midi-Pyrénées), W. Dobler (Univ. of Calgary), A. Johansen (MPI fuer Astronomie), Petri Käpylä (Nordita)

November 6 – 7, 2007

Joint Nordic astrobology and SWAN meeting

A. Brandenburg (Nordita), N. Holm (SU), R. Plasson (Nordita), A. Poole (SU)

June 16 – July 4, 2008

Ultra cold atoms and quark-gluon plasmas (in Copenhagen)

G. Baym (Univ. Illinois), G. Bruun, K. Splittorff, H. Smith (NBI), C. Pethick (Nordita)

August 8 – 17, 2008

De Sitter Cosmology (summer school)

T. Bringmann (SU), Ø. Elgarøy (Oslo), S. Hofmann (Nordita)

August 13 – 16, 2008

Conformal field theory approach to quantum Hall physics: Non-Abelian statistics and quantum computing

E. Ardonne (Nordita), H. Hansson (SU)

August 18 – 22, 2008

idm08: Identification of dark matter

S. Hofmann (Nordita)

August 25 – 27, 2008

Nordita workshop on biological movement and search

J. Hertz (Nordita), R. Metzler (Munich)

April 6 – 10, 2009

Astrophysical magneto hydrodynamics (at Kiljavanranta Conference Centre in Finland)

M. Korpi (Helsinki), A. Shukurov (Newcastle), K. Subramanian (Pune, India)

April 16 – 18, 2009

23rd network meeting on “Strings, fields and branes” (in Copenhagen).

P. Di Vecchia (Nordita), T. Harmark, C. Kristjansen, N. Obers, M. Orselli, K. Zoubos (NBI)

May 27 – 30, 2009

Statistical physics and game theory (in Mariehamn, Åland)

M. Alava (Helsinki), E. Aurell (Stockholm), J. Hertz (Nordita), A. Traulsen (MPI, Plön)

August 24 – 28, 2009

Microphysics in computational relativistic astrophysics (in Copenhagen)

J.T. Frederiksen (NBI), C. Ott (NBI/Caltech), C. Pethick (Nordita)

For more information on Nordita conferences and workshops see the AlbaNova on-line information system <http://agenda.albanova.se/categoryDisplay.py?categId=15>

Appendix E Visitors at Nordita January 2007 – March 2009

The list does not include participants in the Nordita Scientific Programs.

Long-term visitor during 2007

Frank Wilczek, MIT, Cambridge, USA, September 1 – December 15

Short-term visitors during 2007 (less than one month)

Riccardo Argurio, Université Libre de Bruxelles, Belgium
Sven Bingert, Kiepenheuer-Institut f Sonnenphysik, Freiburg, Germany
Yang Chao-Chin, University of Illinois, USA
Dmitri Diakonov, NBI, Copenhagen, Denmark
Peter Ditlevsen, NBI, Copenhagen, Denmark
Malcolm Fairbairn, CERN, Geneva, Switzerland
Marcus Gellert, Astrophysical Institute Potsdam, Germany
Michael Green, University of Cambridge, Great Britain
Kirsi Lehto, University of Turku, Finland
Birgitta Nordström, NBI, Copenhagen, Denmark
Horst Rauchfuss, Varberg, Sweden
Matthias Rheinhardt, Astrophysical Institute Potsdam, Germany
Karl-Heinz Rädler, Astrophysical Institute Potsdam, Germany
Sharanya Sur, IUCAA, Pune, India
Kandaswamy Subramanian, IUCAA, Pune, India
Juri Toomre, University of Colorado, USA
Ruth Durrer, Université de Geneve, Switzerland
Christos Tsagas, Univ. of Thessaloniki, Greece
Matthias Rheinhardt, Astrophysical Institute Potsdam, Germany
Edward Spiegel, Columbia University, USA
Eva Sramkova, Masaryk University Tjeckoslovakia
Natalia Babkovskaia, University of Oulu, Finland
Martin Nilsson Jacobi, Chalmers, Gothenburg, Sweden
Anders Johansen, Max Planck Institut für Astronomie, Heidelberg, Germany
Hans Fogedby, University of Copenhagen, Denmark
Sigurd Köhler, University of Arizona, Tuscon, USA
Bojan Losic, University of Alberta, Canada
Martin Sloth, Aarhus University, Denmark

Long-term visitors during 2008

John Wettlaufer, Yale University, USA, June 1 – December 31
Erling Brynjolfsson, University of Iceland, January 1 – June 30
Alexandr Zhelthukin, Kharkov Institute, Ukraine, March 1 – June 30
Emiliano Sefusatti, Fermilab, USA, October 1 – December 31
Jung-Tay Yee, University of Helsinki, November 1, 2008 – January 31, 2009

Short-term visitors during 2008

Eugene Zaremba, Queen's University, Kingston, Canada
Boris Dintrans, Observatoire de Toulouse, France
Petri Kämpylä, University of Helsinki, Finland
Natalia Babkovskaia, University of Helsinki, Finland

Nils Haugen, SINTEF, Norway
Rinat Kedem, University of Illinois, USA
Sigurd Köhler, University of Arizona, USA
Jonathan Braitwaite, Toronto, Canada
Alexander Vikman, New York University, USA
Francesco Sannino, University of Southern Denmark, Denmark
Ralph Blumenhagen, Max-Planck-Institut f Physik, München, Germany
Cédric Deffayet, Université de Paris, France
Patil Subodh, Humboldt University of Berlin, Germany
Joe Conlon, Cambridge University, Great Britain
Angel Uranga, CERN, Switzerland
Martin Sloth, University of Aarhus, Denmark
Thomas Thiemann, Albert Einstein Institut, Germany
Anne Green, Nottingham University, Great Britain
Dario Grasso, INFN, Italy
Sysky Räsänen, CERN, Switzerland
Axel Kleinschmidt, University of Bruxelles, Belgium
Fernando Marchesano, CERN, Switzerland
Vasil Geoffrey, University of Colorado, USA
Joost Slingerland, Dublin Institut for Advanced Studies, Ireland
Dhruvadya Mitra, Queen Mary College, London, Great Britain
Igor Pesando, University of Torino, Italy
Claudia de Rham, Perimeter Institute, Canada
Andrew Tolley, Perimeter Institute, Canada
Constantin Skordis, Perimeter Institute, Canada
Raffaello Marotta, University of Naples, Italy
Ramesh Narayan, Harvard Smithsonian Centre for Astrophysics, USA
Nils Andersson, Southampton University, Great Britain
Ludovic Jullien, Ecole Normale Supérieure, France
Helge Hellevang, University of Bergen, Norway

Long-term visitors during 2009 (January – March)

Karl Heinz Rädler, Astrophysical Institute Potsdam, Germany, January 15 – February 28
Alexandr Zhelthukin, Kharkov Institute, Ukraine, February 15 – March 31
Daniel Sunhede, Gothenburg, Sweden, March 16 – June 7

Short-term visitors during 2009 (January – March)

Matthias Rheinhard, Astrophysical Institute of Potsdam, Germany
Dhruvadya Mitra, Queen Mary College, London, Great Britain
Kareljan Shoutens, Institut for Theoretical Physics, Univ. of Amsterdam, Netherlands
Liza Huijse, Institut for Theoretical Physics, Univ. of Amsterdam, Netherlands
David Sherrington, Theoretical Physics, Oxford University, Great Britain
Igor Pesando, University of Torino, Italy
Hans Behringer, University of Bielefeld, Germany
Geoffrey Vasil, Vilnius, Latvia
Petri Kämpylä, University of Helsinki, Finland
Natalia Babkovskaia, University of Helsinki, Finland
Nils Haugen, SINTEF, Norway
Piyali Chatterjee, Tata Institute of Fundamental Research, India
Erling Brynjofsson, Science Institute, University of Iceland

Sharanya Sur, IUCAA, Pune, India
Bart Cleuren, Hasselt University, Belgium
Pascal Anastopoulos, CERN
Michael Mulligan, Stanford, USA
Violaine Auger, Université de Paris, France
Hugues Bersini, Université Libre de Bruxelles, Belgium
Kandaswamy Subramanian, Pune, India
Jan-Willhem van Holten, Nikhef, Amsterdam, Netherlands
Thomas Tiemann, Albert Einstein Institute, Germany
Frederic Paul Schuller, Albert Einstein Institute, Germany
Bernhard Nienhuis, University of Amsterdam, Netherlands
Ian Jones, Southampton University, Great Britain