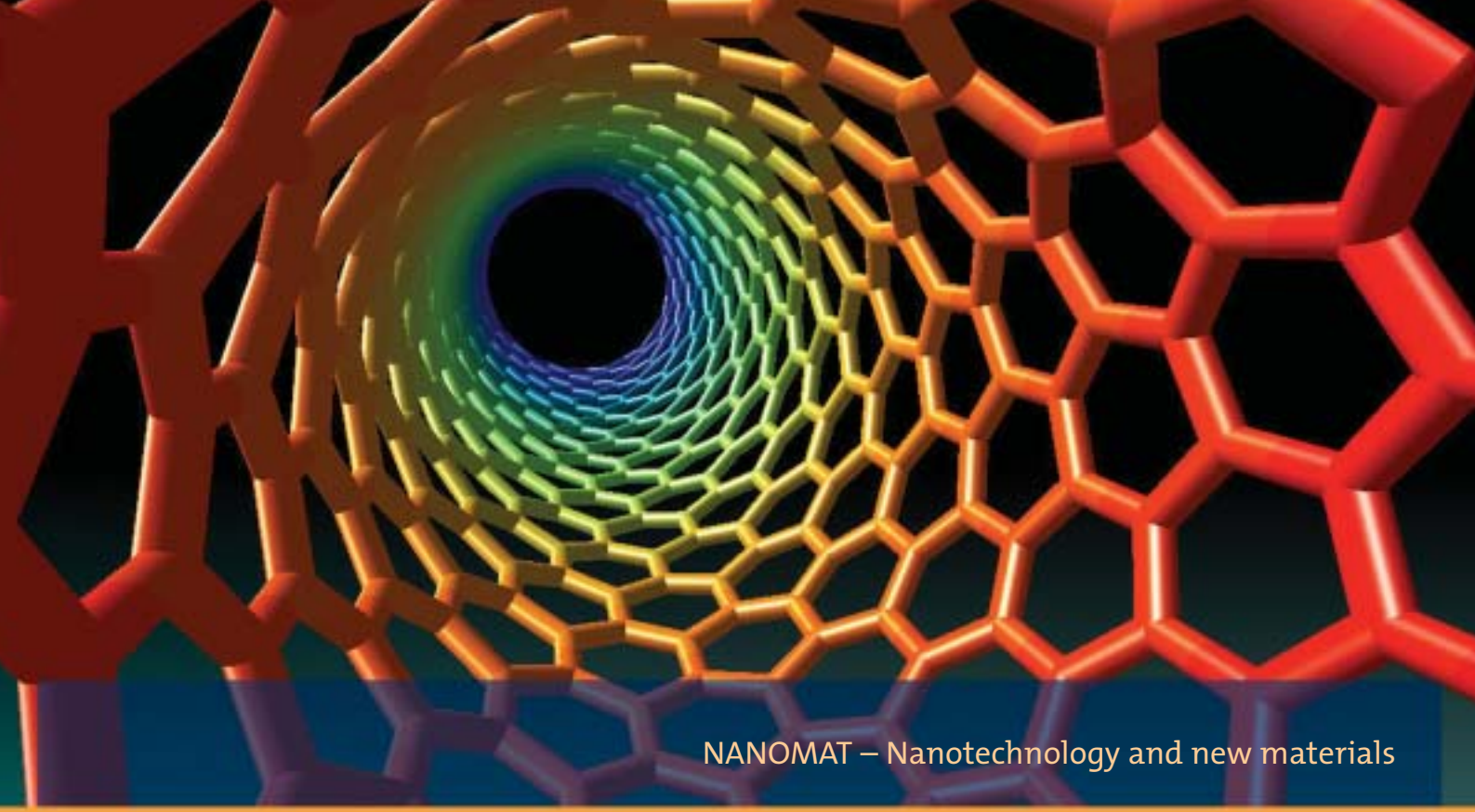


NANOMAT – Nanotechnology and new materials

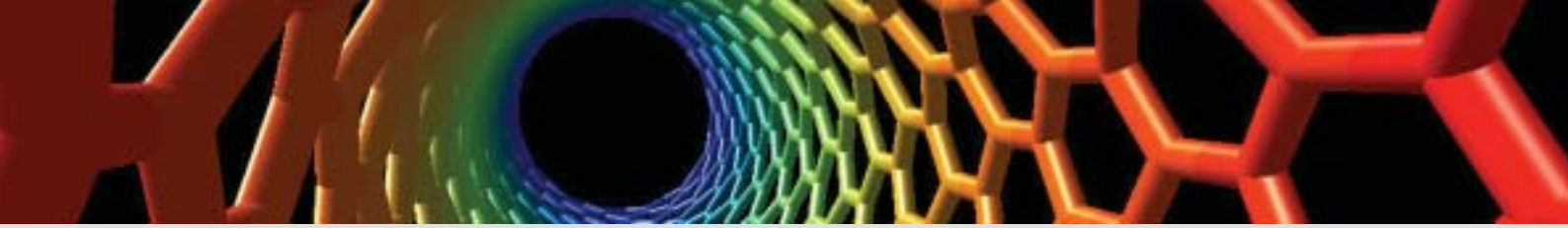
NANOMAT – Birkeland conference 2005

The Research Council of Norway | Large-scale programmes

Radisson SAS Royal Garden Hotel, Trondheim

2–3 June 2005

– organized in co-operation with
The Norwegian Academy of
Technological Sciences (NTVA)



NANOMAT – Birkeland conference 2005

Thursday June 2

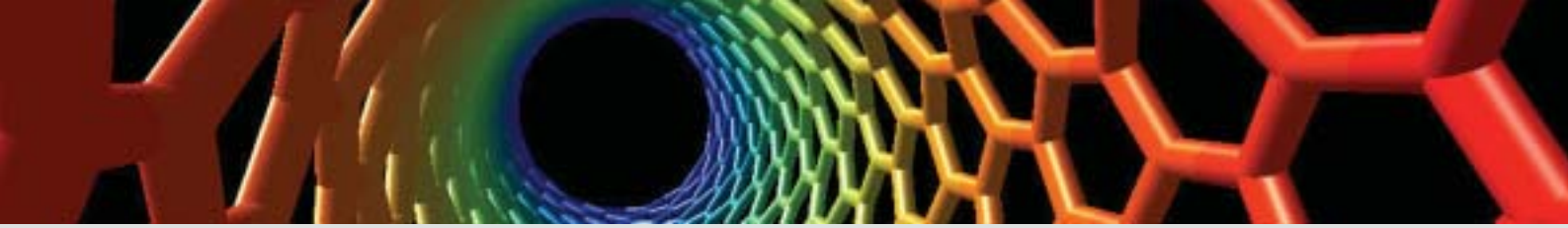
Schedule	*Title*	*Speaker*
0930–1000	**Arrival and registration**	
	Moderator	***Dag Høvik,*** *The Research Council of Norway*
1000–1010	**Welcome**	***Karin Refsnes,*** *The Research Council of Norway*
1010–1030	**NANOMAT**	***Bjørn Torger Stokke,*** *Chairman of the NANOMAT Programme Committee*
1030–1115	**Norway as an innovative materials producer – what can we learn from Birkeland today?**	***Egil Myklebust,*** *Former Chairman of Norsk Hydro ASA, Norway*
	Moderator	***Bjørn Torger Stokke,*** *Norwegian University of Science and Technology*
1115–1200	**Nanotechnology from an international perspective – and what happens in Norway**	***Bengt Kasemo,*** *Chalmers University of Technology, Sweden*
1200–1230	**How can nanotechnology and new materials contribute to make Norway one of the most innovative countries in the world?**	*State Secretary to the Ministry of Trade and Industry* ***Tone Skogen***
1230–1330	*Lunch*	

Energy and materials

Schedule	*Title*	*Speaker*
	Moderator	***Rune Bredesen*** *SINTEF, Norway*
1340–1420	**Mixed conductors for electrical power applications**	***U. (Balu) Balachandran*** *Argonne National Laboratory, USA*
1420–1500	**Processing of nanomaterials**	***Pulickel Ayajan*** *Rensselear Polytechnic Institute, USA*
1500–1520	*Coffee*	

ICT and sensors

Schedule	*Title*	*Speaker*
	Moderator	***Ola Hunderi*** *Norwegian University of Science and Technology*
1340–1420	**Novel methods of structure fabrication and property measurement on the nanoscale**	***Masakazu Aono*** *National Institute for Materials Science, Japan*
1420–1500	**The "Millipede" – a nanotechnology approach to data storage**	***Peter Vettiger*** *IBM Research, Switzerland*



NANOMAT – Birkeland conference 2005

Thursday June 2

Energy and materials

Schedule	Title	Speaker
	Moderator	***May Britt Hägg*** *Norwegian University of Science and Technology*
1520–1540	**New ceramic proton conductors for fuel cells and gas separation membranes**	***Truls Norby*** *University of Oslo, Norway*
1540–1600	**Quantitative three dimensional imaging of structures on the nanometer scale**	***John Walmsley*** *Norwegian University of Science and Technology and SINTEF, Norway*
1600–1620	**Nanocarbon**	***Arne T. Skjeltorp*** *Institute for Energy Technology, Norway*
1620–1640	**Atomic-scale modeling of materials for hydrogen technology**	***Ole Martin Løvvik*** *University of Oslo, Norway*
1640–1700	**Influence of nanostructure on the conductivity in ion conducting glasses**	***Jan Swenson*** *Norwegian University of Science and Technology*
1700–1900	**Poster session**	
1930	*Dinner*	

ICT and sensors

Schedule	Title	Speaker
	Moderator	***Aase Hundere*** *The Research Council of Norway*
1520–1540	**Smooth nanochannels imprinted using carbon nanotube stamps**	***Dorte Nørgaard Madsen*** *University of Bergen, Norway*
1540–1600	**Ferroelectricity at the nm-level: a route towards nanoscale devices**	***Thomas Tybell*** *Norwegian University of Science and Technology*
1600–1620	**Spin Transport in Superconductors**	***Jan Petter Morten*** *Norwegian University of Science and Technology*
1620–1640	**Electro-optics for the future**	***Frode Tyholdt*** *SINTEF, Norway*
1640–1700	**Thin films of sensor materials**	***Ola Nilsen*** *University of Oslo, Norway*

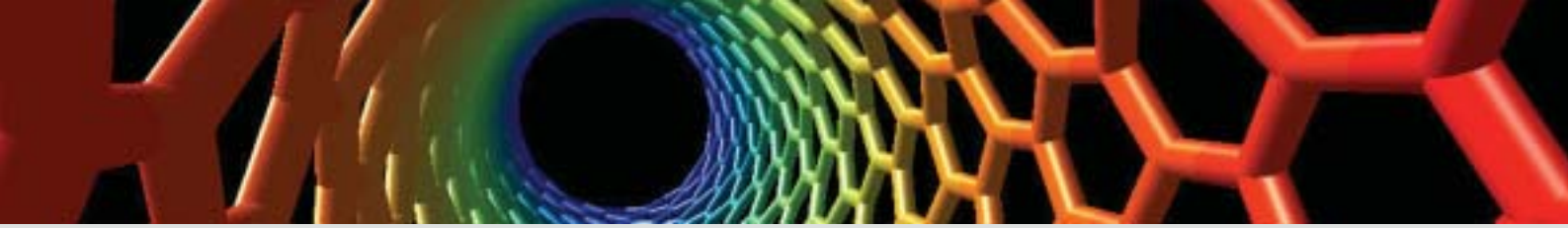
Friday June 3

Crossdiciplinary research

Schedule	Title	Speaker
	Moderator	***Kristin Vinje*** *Ministry of Trade and Industry*
0830–0910	**Nanotechnology and its challenges**	***Harald Fuchs*** *University of Münster, Germany*
00910–0950	**Nanotechnology in Europe from an innovation perspective**	***Raymond Oliver*** *Cenamps, UK*
0950–1000	*Coffee*	

Nanotechnology research in Europe and Japan

Schedule	Title	Speaker
	Moderator	***Thomas Tybell*** *Norwegian University of Science and Technology*
0830–0910	**Nanotechnology research in Denmark and at the Nano-Science Centre**	***Thomas Bjørnholm*** *University of Copenhagen, Denmark*
0910–0950	**Nanoscience and Nanotechnology in education and research in Sweden and at Lund University**	***Knut Deppert*** *Lund University, Sweden*



NANOMAT – Birkeland conference 2005

Friday June 3

Crossdiciplinary research

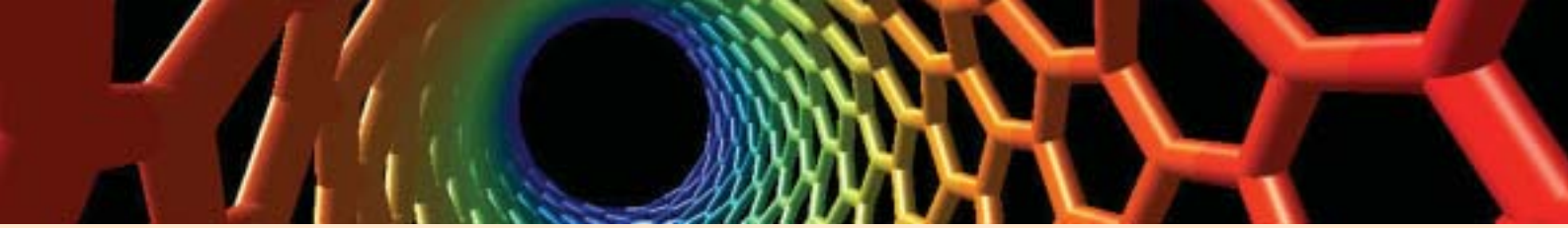
Schedule	*Title*	*Speaker*
	Moderator	***Arne Skjeltorp*** *Institute of Energy Technology, Norway*
1000–1020	**Nanotechnologies – possibilities and challenges seen from an investors view**	***Oddvard Aaserud*** *VENTUROS, Norway*
1020–1040	**Smart wear – a new opportunity for Norwegian textile industry?**	***Hilde Færevik*** *SINTEF Health, Norway*
1040–1100	**NANOCAPS, Nanocapsules for Controlled Delivery of Chemicals**	***Christian Simon*** *SINTEF, Norway*
1100–1120	**From nanotechnology to applied geology, are there any links?**	***Jon Otto Fossum*** *Norwegian University of Science and Technology*
1130–1230	*Lunch*	

Nanotechnology research in Europe and Japan

Schedule	*Title*	*Speaker*
	Moderator	***Poul Norby*** *University of Oslo, Norway*
1000–1040	**Nanotechnology research activities at NTT Basic Research Laboratories**	***Hideaki Takayanagi*** *NTT Basic Research Laboratories, Japan*
1040–1120	**Nanotechnology research in Finland**	***Risto Nieminen*** *Helsinki University of Technology, Finland*

Plenary session

Schedule	*Title*	*Speaker*
	Moderator	***Eivind Hiis Hauge,*** *Norwegian University of Science and Technology*
1230–1300	**Ethics and nanotechnology**	***Göran Hermerén,*** *Lund University, Sweden*
1300–1400	**The heritage after Kristian Birkeland**	***Asgeir Brekke,*** *University of Tromsø, Norway*
1 400–1415	*Coffee*	
	Moderator	***Anne Borg,*** *Norwegian University of Science and Technology*
1415–1515	**Science as a peacekeeper**	***Thorvald Stoltenberg,*** *Norwegian Red Cross*
1515–1535	**Nanotechnology and new materials in the perspective of the 2005 White paper on research**	*State Secretary to the Ministry of Education and Research* ***Bjørn Haugstad***
1535–1545	**Closing remarks**	***Eivind Hiis Hauge,*** *Norwegian University of Science and Technology*



NANOMAT – Nanotechnology and new materials

Nanotechnology and materials technology are strategically important fields of scientific research with a substantial commercial potential. Nanotechnology includes nanoscience and may be defined as: "new techniques for synthesis and processing, including manipulation and assembly using natures own building blocks (atoms, molecules or macromolecules) for the intelligent design of functional materials, components and systems featuring attractive qualities and functions and where dimensions and tolerances from 0.1 to 100 nanometers (nm) play a decisive role".
Nanotechnology is interdisciplinary, embracing physics, chemistry, biology, molecular biology, medicine, electronics and ICT.

The Research Council has established the instrument large-scale research programmes in order to address policy research priorities that are of crucial importance to society. The aim of the NANOMAT initiative within nanotechnology and materials technology is to enforce basic knowledge in order to pave the way for new knowledge-based and research-intensive industry, and provide a sustainable evitalisation of established Norwegian industry. The programme aims at inducing research of high international quality. It has set two major priorities:

- To develop new materials, with the focus on functional materials
- To focus on selected parts of nanotechnology – including improvment of structural materials by use of nanotechnology.

The programme runs 2002–2008.

– an extension towards 2011 is under preparation.

www.program.forskningsradet.no/nanomat

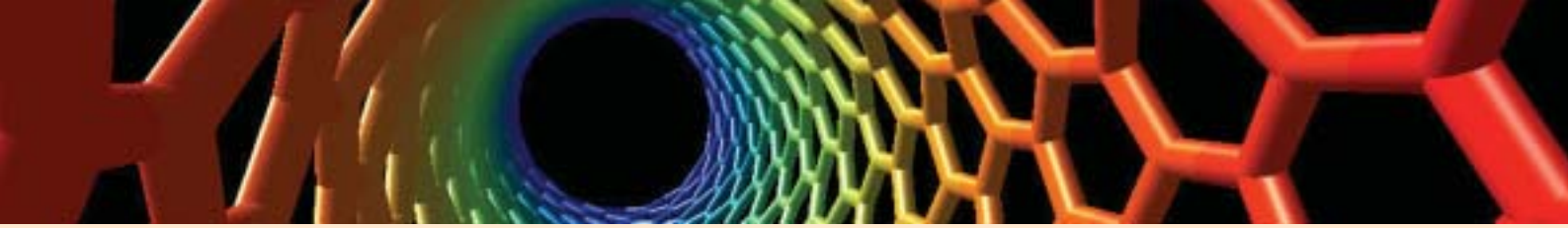
World Year of Physics

The United Nations have decreed 2005 as the World Year of Physics. The background for choosing the year 2005 is that we celebrate the 100th anniversary for the publication of three of Albert Einsteins most important papers this year. The papers were on the photoelectric effect, Brownian motion and the special theory of relativity. These papers, in addition to the quantum mechanics, laid the foundation for many important theories and innovations. It made possible the utilisation of the enormous amounts of energy stored in the nucleus of atoms as well as the understanding of the properties of semiconductors, one of the cornerstones of modern technology.
www.fysikk2005.no/kalender/skjema.html

The Birkeland jubilee

The national committee for the World Year of Physics and the The Research Council of Norway, in collaboration with Norwegian Academy of Technological Sciences (NTVA) wish to honour the work of Kristian Birkeland in 2005. The timing is appropriate for several reasons. Birkeland is probably Norways best known physisist and his theories for the origin of Northern light and his ideas about the energy transfer from the sun to the upper atmosphere were ahead of time and is in many ways the foundation of modern space research. To the general public he is known for the Birkeland-Eyde method for the production of salpeter and the establishment of Norsk Hydro in 1905. The fact that the year 2005 is the 100th anniversary of Norways independence as well as the foundation of one of the central players in Norwegian industry makes a celebration of Kristian Birkeland a natural choice.

Birkeland was a man with a wealth of ideas and the coupling between fundamental research and industrial research and his ability to popularise and engage made him a model, a model from which we still has a lot to learn.
www.ntva.no



Information and registration

Registration fee:

Ph.D students	no fee	☐
Others	NOK 1.000,-	☐

Hotel accommodation, Radisson SAS Royal Garden Hotel – full pension in single room includes breakfast buffet, lunch both days w/mineral water and a 3 course dinner w/wine:

Ph.D students	NOK 1.000,-	☐
Others	NOK 1.900,-	☐

Conference participation June 2 – including lunch w/mineral water:

Ph.D students	NOK 150,-	☐
Others	NOK 400,-	☐

Participation Conference dinner June 2 – a 3 course dinner w/wine:

Ph.D students	NOK 300,-	☐
Others	NOK 550,-	☐

Conference participation June 3 – including lunch w/mineral water:

Ph.D students	NOK 150,-	☐
Others	NOK 400,-	☐

Organizing committee:

Arne Skjeltorp, *Institute for Energy Technology*
Rune Bredesen, *SINTEF Materials and Chemistry*
Poul Norby, *University of Oslo*
Ola Hunderi, *The Norwegian University of Science and Technology*
May-Britt Hägg, *The Norwegian Academy of Technological Sciences*
Dag Høvik, *The Research Council of Norway*
Aase Hundere, *The Research Council of Norway*

Conference administration

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Send registration to:
Agnes Aune or online registration at:
http://program.forskningsradet.no/nanomat/fs/index.html?kategoriid=9

Poster session

There will be a poster session on June 2. Title for the poster presentations should be submitted to the the administration within May 15, 2005.

Publication

The presentations and posteres will be presented at the NANOMAT web page after the conference.
www.forskningsradet.no/nanomat

DEADLINES

Registration to the conference:
May 1, 2005
Submission of poster Title:
May 15, 2005

Personal information

Title: Prof. ☐ Dr. ☐ Mr. ☐ Ms. ☐ Other ☐

Last name:

First name:

Organization:

Street address:

Zip code: City:

Telephone: e-mail:

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