



INVITATION

4th NRW Nano-Conference

Conference/Exhibition/Workshops
Dortmund, 17 – 18 October 2011
Kongresszentrum Westfalenhallen





Dear Reader,

Climate change, the scarcity of resources and energy, demographic transition – these are just some of the global challenges facing us today. It is up to society and politicians to develop nationally and internationally sustainable solutions which people will go along with, while making health and prosperity a reality for everyone. Technological developments and solutions play a significant role here. They can provide a major contribution to the development of strategies for the future which are capable of achieving consensus.

Research shows that huge energy savings are possible simply by broadening the use of certain technologies already available in Germany: some 20% of the energy consumed could be saved – at no extra cost, largely bringing financial savings, and without any concessions to quality of life or utility value.

Considerably greater effects can be achieved through technological advances and new developments – not only with regard to energy efficiency, but in almost all global issues. New, nano-optimised photovoltaics, high-performance materials for lightweight construction, and technologies to support the independent living of the elderly are just some examples.

To put this into practice we need the core technologies - innovative materials, optical technologies, microsystems technology, life sciences and especially nanotechnology. They make technological innovations possible. In an industrialised region such as North Rhine-Westphalia, these „Enabling Technologies“ are crucial to attaining social prosperity, overcoming global challenges and im-

proving economic efficiency. Nanotechnology therefore constitutes one of the region's strategic policy areas. North Rhine-Westphalia is distinguished by its excellent research institutes, innovative start-ups and a strong presence in this future industry. We will continue to build on these strengths, supported by the expansion of the successful cluster management NanoMicro+Materials.NRW. This year's NRW Nano-Conference underlines the important role of nanotechnology in addressing the central issues of the future. A broad spectrum is covered by the four key themes of energy management, mobility, health and the question of how to ensure that opportunities are seized in conjunction with the safe and responsible application of nanotechnology.

It is a pleasure for the NRW Nano-Conference in Dortmund to once more welcome top-class guests from the business and research sectors. This provides us with an excellent opportunity to strengthen existing alliances and to establish new contacts. Dortmund can be proud to be hosting the conference again this year. As one of the leading locations for microsystems technology, the city has recognised the future potential of nanotechnology. I would like to wish the NRW Nano-Conference and all its participants a fruitful exchange of ideas and successful two days.



Svenja Schulze

Minister for Innovation, Science and Research
for the State of North Rhine-Westphalia

FOREWORD



Dear Reader,

With the dortmund-project, Dortmund as a business location has been focussed on supporting and advancing future industries since 2000. These include logistics, biotechnology, information and communication technology and, above all, micro- and nanotechnology. Dortmund has evolved over the last decade to become one of the leading locations for micro- and nanotechnology. With 45 companies employing around 2,300 staff, Dortmund counts among Europe's three largest clusters in this sector. And this strong position will continue to be developed – the new PHOENIX West industrial park offers the ideal space and environment.

The NRW Nano-Conference, this year taking place in Dortmund for the fourth time, has established itself as a platform for innovative technologies. I am very proud that North Rhine-Westphalia has yet again chosen Dortmund as the venue for the NRW Nano-Conference. Please take the opportunity to find out about the latest developments in nanotechnology along with projects to solve the challenges faced by society today. I wish you a successful visit.

A handwritten signature in black ink, appearing to read 'Udo Mager', written in a cursive style.

Udo Mager

Managing Director, City of Dortmund
Economic Development Agency



Dear Guests,

Nanotechnology is one of the most important key technologies of the 21st century. Nanotechnology makes fundamental technical innovations possible – whether in materials technology, energy technology or environmental protection. Future global challenges such as climate change or the threat of scarce resources can be overcome. At the same time, nanotechnology contributes towards the economic strength of North Rhine-Westphalia. With over 400 stakeholders in the field of nanotechnology, NRW is Germany's top location.

The purpose of the 4th NRW Nano-Conference is to enable NRW to continue building upon its excellent position in the field of nanotechnology and to apply the innovation potential of nanotechnology in a variety of disciplines in the future.

A handwritten signature in black ink, appearing to read 'H. Cremer'. The signature is fluid and cursive, with a long horizontal stroke at the end.

Dipl. Ing. Harald Cremer

Managing Director Cluster NanoMicro+Materials.NRW

THE EXPERTS

HEALTH “Progress instead of visions – nanotechnology in medicine”. This group of experts illuminates how nanobiotechnology can help towards innovative, individual therapies. The focus of interest is on the potential for nanotechnology in cancer therapy, in regenerative medicine and in diagnostics as well as in prevention, such as avoiding heart attacks.

The Experts: **Prof. Dr. Michael Schäfers**, European Institute for Molecular Imaging, Münster | **Prof. Dr. Dario Anselmetti**, University of Bielefeld | **Prof. Dr. Christof Niemeyer**, TU Dortmund | **Dr. Andreas Jordan**, Magforce Berlin | **Dr. med. Friedrich-Wilhelm Steinweg**, Nanohale AG | **Prof. Dr. Andreas Herrmann**, University of Groningen

SAFETY “Nanotechnologies – seizing opportunities – ensuring safety”: This group of experts’ presentation discusses the different aspects of safety management for nanotechnologies and nanomaterials. Based on the lifecycle of nanomaterials in the value added chain, conclusions are derived from observing release mechanisms and effects with the aim of achieving significant risk analyses.

The Experts: **Dr. Thomas Kuhlbusch**, IUTA e. V. Duisburg | **PD Dr. Klaus Unfried**, Leibniz Research Institute for Environmental Medicine Düsseldorf | **Dr. Rolf Buschmann**, Consumer Advice Centre NRW | **Dr. Rolf Packroff**, BAuA, Dortmund | **Dr. Wolfgang Luther**, VDI Technologiezentrum GmbH | **Dr. Péter Krüger**, Bayer MaterialScience AG | **Prof. Dr. Elke Dopp**, University Duisburg-Essen

MOBILITY “Nano in Motion”: Nanotechnology is already being applied in the automotive sector. In this presentation the experts show how to succeed in improving passenger safety and increasing the environmental friendliness and comfort of vehicles. Such nanotechnology applications are relevant beyond the automotive sector and can be applied to all areas of mobility.

The Experts: **Prof. Dr. Andrei Vescan**, RWTH Aachen | **Prof. Dr. Angelika Heinzl**, ZBT Duisburg | **Prof. Dr. Wolfgang Bremser**, University Paderborn | **Holger Meinel**, Daimler AG | **Dr. Arnold Gillner**, Fraunhofer Institute for Laser Technology | **Prof. Dr.-Ing. Stefan Pischinger**, RWTH Aachen | **Prof. Dr. Henning Zoz**, Zoz Group, Wenden

ENERGY “Nano power – contributing to energy supply and efficiency”: The group of energy experts is dedicated to nanotechnologies which fulfil the needs of energy-conscious users. Thus, they present nanotechnologies which can support the generation, storage and recycling of electrical energy.

The Experts: **Dr. Lutz Aschke**, LIMO Lissotschenko Mikrooptik GmbH Dortmund | **Dr. Gerd Bachmann**, VDI Technologiezentrum GmbH | **Dr. Jörg-Bernd Bonekamp**, Soluxx GmbH Köln | **Prof. Dr. Roland Schmechel**, Univ. Duisburg-Essen/CeNIDE | **Dr. Joachim Bock**, Nexans Super Conductors | **Prof. Dr. Reinhard Strey**, University of Cologne

CONFERENCE PROGRAMME

- 09:00** Registration of participants
- 10:00** **Welcome**
Udo Mager, Managing Director, City of Dortmund Economic Development Agency
- 10:10** **NRW's nanotechnology strategy**
Svenja Schulze, Minister for Innovation, Science and Research for the State of North Rhine-Westphalia
- 10:25** **Highlight on Nanotech enabled sustainable development efforts in Asia**
Dr. Lerwen Liu, NanoGlobe Pte Ltd, Singapore
- 11:15** **Progress instead of visions – nanotechnology for medicine**
The Health Experts Group:
Prof. Dr. Michael Schäfers, Prof. Dr. Dario Anselmetti, Prof. Dr. Christof Niemeyer, Dr. Andreas Jordan, Dr. med. Friedrich-Wilhelm Steinweg, Prof. Dr. Andreas Herrmann
- 12:00** **„10 years of safety research on nanomaterials“ by the DECHEMA/VCI-working group „Responsible Production and Use of Nanomaterials“** Dr. Péter Krüger, BMS AG
- 12:10** Coffee Break and visit of exhibition
- 13:00** Company exhibitions in Halls 4 + 5

One of the greatest for the smallest

The nanotechnology location of NRW in dialogue
www.nrw-nanokonferenz.de

- 14:00** **Nano in Motion**
The Mobility Experts Group:
Prof. Dr. Andrei Vescan, Prof. Dr. Angelika Heinzl, Prof. Dr. Wolfgang Bremser, Holger Meinel, Dr. Arnold Gillner, Prof. Dr.-Ing. Stefan Pischinger, Prof. Dr. Henning Zoz
- 14:45** **Nanotechnologies – seizing opportunities – ensuring safety**
The Safety Experts Group:
Dr. Thomas Kuhlbusch, PD Dr. Klaus Unfried, Dr. Rolf Buschmann, Dr. Rolf Packroff, Dr. Wolfgang Luther, Dr. Péter Krüger, Prof. Dr. Elke Dopp
- 15:30** Coffee break and visit of the exhibition
- 16:15** **Nano power – contributing to energy supply and efficiency**
The Energy Experts Group:
Prof. Dr. Roland Schmechel, Dr. Lutz Aschke, Dr. Gerd Bachmann, Dr. Jörg-Bernd Bonekamp, Dr. Joachim Bock, Prof. Dr. Reinhard Strey
- 17:00** Evening programme in Hall 8
- 17:15** **Future management and a culture of trust towards corporate success**
Uwe Rotermund, noventum consulting GmbH
- 18:00** Buffet and get together

The conference will be accompanied on both days by an exhibition of North Rhine-Westphalian micro and nano companies and institutions.

- 09:30** **Welcome** Dr. Heinz-Georg Nothofer,
Cluster NanoMicro+Materials.NRW
- 09:35** **Nano-structured materials for emissions-free mobility and the energy of the future**
Prof. Dr. Henning Zoz, ZOZ Group, Wenden
- 09:55** **CNTs and nano particles in polymer composites: The challenges of the virtual institute “Nanotechnology in polymer composites”** Christine Arlt, DLR German Aerospace Center Institute of Composite Structures and Adaptive Systems, Braunschweig
- 10:15** **Nanotechnology for mobility. Textiles technology? Textiles technology!** Dr.-Ing. Gunnar Seide, Institute for Textiles Technology at the RWTH Aachen
- 10:35** Coffee break
- 11:00** **Enhancing finishing processes for nano-modified polymer composites – Tandem presentation:** Dr.-Ing. Marcus Schuck, Jacob Plastics GmbH, Wilhelmsdorf, Klaus Hildebrandt, Institut für Verbundwerkstoffe GmbH, Kaiserslautern
- 11:20** **Carbon Nanotubes as efficiency enhancers in energy storage and energy conversion** Dr. Egbert Figgemeier, Bayer Technology Services GmbH, Leverkusen
- 11:40** **Nano crystalline aluminium high performance materials for automobile constructions – development results and examples of applications** Klaus Hummert, Powder Light Metals GmbH, Gladbeck
- 12:15** Company exhibitions in Halls 4 + 5

- 09:30** **Welcome** Dr. Thomas Richter,
MST.factory dortmund
- 09:35** **Nanotechnologies in the public eye and
the political risk debate** Dr. Antje Grobe,
Risk Dialogue Foundation, Dettenhausen
- 09:55** **Sustainability check for nano products**
Dr. Christoph Pistner, Oeko-Institute e. V.,
Darmstadt
- 10:15** **Safe development of carbon nanotubes**
Dr. Jacques Ragot, Bayer MaterialScience
AG, Leverkusen
- 10:35** Coffee break
- 11:00** **Nanomaterials and the European Chemi-
cals Directive REACH** Dr. Elmar Böhlen,
BAuA - Federal Institute for Occupational
Safety and Health, Dortmund
- 11:20** **Safety aspects of synthetic nanomateri-
als in the food sector** Dr. Kathleen Oehlke,
Research Institute of Nutrition and Food,
Karlsruhe
- 11:40** **Toxicity tests for nanomaterials and na-
noparticles** Prof. Dr. Elke Dopp, Institute of
Hygiene and Occupational Health, University
Duisburg-Essen
- 12:15** Company exhibitions in Halls 4 + 5

- 14:00** **Welcome** Heinz-Peter Hippler, IVAM Micro-technology Network
- 14:05** **Highly efficient electrical heat coatings made of carbon nanomaterials** Dr. Walter Schütz, Thomas Meinen, FutureCarbon GmbH, Bayreuth
- 14:30** **Flexible organic electronics** Dr. Jörg-Bernd Bonekamp, Soluxx GmbH, Köln
- 14:55** **IR-absorbance plastics for thermo-electric applications** Dr.-Ing. Wolfgang Beck, Duropan GmbH, Halberstadt
- 15:20** Coffee break
- 15:45** **Serial production of nanomaterials for fuel cells** Ulrich Platthaus, 3M Deutschland GmbH, Neuss
- 16:10** **Nano-hydrogen sensor – cost effective high performance sensors for fuel cells** Dr. Dieter Ostermann, ODB-Tec GmbH & Co.KG, Neuss
- 16:35** **Developments in Air-Electrodes for metal-air batteries** Dr. Jens Burfeind, ReVolt Technology GmbH, Dortmund
- 17:00** **Electrical conductivity of textiles using carbon nanotubes (CNT) in melt spun filament yarns** Wilhelm Steinmann, Johannes Wulfhorst, Institute for Technology (ITA), RWTH Aachen

- 14:00** **Welcome** Dr. Klaus-Michael Weltring,
Cluster NanoMicro+Materials.NRW
- 14:05** **Nanotechnology and the rise of molecular
medicine – some ethical and societal re-
flections** Dr. Marianne Boenink, Department
of Philosophy, University of Twente,
Enschede, Niederlande
- 14:25** **Marker-free cell analysis** Prof. Dr. Gert von
Bally, Center for Biomedical Optics and Pho-
tonics at the University of Münster
- 14:45** **Application of super-paramagnetic nano-
particles in personalized cell therapy** Dr.
Michael Apel, Miltenyi Biotec GmbH, Bergisch
Gladbach
- 15:05** Coffee break
- 15:30** **Molecular imaging for personalized car-
diovascular diagnostics** Prof. Dr. Michael
Schäfers, European Institute for Molecular
Imaging, Münster
- 15:50** **Inorganic nanoparticles for targeted ma-
nipulation of cells** Prof. Dr. Matthias Epple,
Institute for Anorganic Chemistry, University
Duisburg-Essen
- 16:10** **Valves and stockings – textile reinforced
cardiovascular tissue engineering** Prof.
Dr. med. Stefan Jockenhövel, Institute for
Applied Medical Engineering AME,
Helmholtz-Institute of RWTH Aachen and
University & Hospital

WELCOME



The interdisciplinary technologies of micro and nanotechnology are also of great significance when it comes to the question of energy efficiency. Nano-coatings, abrasion minimization, organic electronics, battery development and nano-sensors are just a few of the different uses which micro and nanotechnology can be put to. In NRW, IVAM is the largest association for micro technology and, together with the universities and companies from the region, we provide our members with the opportunities and support they need to stay at the cutting edge of technology. We are continuing this dialogue in the 4th NRW Nano Conference to provide the chance to strengthen positions in face of intensive international competition.

Heinz-Peter Hippler,

Managing Director IVAM Microtechnology Network



The development of more and more new applications and innovations in the field of nanotechnologies is gaining in impetus. Nanotechnology developments are becoming an increasingly important factor for competitiveness in world markets and for achieving sustainable employment. With the infrastructure it offers to young companies, MST.factory dortmund is actively involved in technology transfer and promoting the entrepreneurial implementation of innovations in the field of micro and nanotechnology. Why not take the opportunity at the 4th NRW-Nano Conference to find out in detail about current developments and innovations in nanotechnology and to make new contacts?

Dr. Thomas Richter,

Center Manager, MST.factory dortmund

DIRECTIONS/CONTACT

By car:

Direct connections via the B 1 (A 40) from the motorway A 1 (Hansalinie), A 45 (Sauerlandlinie), A 2 (Berlin – Hannover – Dortmund – Oberhausen), A 42 (Duisburg – Dortmund), B 1 (A 44) (Dortmund – Kassel). Parking spaces for approx. 8,500 cars directly next to the Westfalenhallen.

By public transport:

Take the U45 subway train from the main railroad station (Hauptbahnhof Dortmund) to the Westfalenhallen Congress Center.

By train:

By ICE, Intercity, Eurocity and InterRegio trains from almost all large cities to Dortmund main railroad station (Hauptbahnhof Dortmund).

By plane:

Direct connections from Dortmund Airport. About 12 km to the Westfalenhallen Dortmund.

Hotel reservations:

Hotel bookings possible at www.nano-konferenz/service.de

Venue:

Kongresszentrum
Westfalenhallen
Dortmund
Rheinlanddamm 200
44139 Dortmund

Conference office:

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Michaela Franzes/
Kurt Pommerenke
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Fax: +49(0)231 50-24 112

www.nrw-nanokonferenz.de

I would like to confirm my binding registrations for the following events:

- 4. NRW Nano-Conference
- Evening programme

- Session 1: Mobility
- Session 2: Safety
- Session 3: Energy
- Session 4: Health

There is no fee for participating in the conference or for visiting the accompanying exhibition.

Please send us your registration by 10.10.2011 by post or fax: **0231/50-2 41 12.**

Online registration at: www.nrw-nanokonferenz.de

Last name, First name _____

Company _____

Street, number. _____

Postcode, City/town _____

Telephone _____

E-mail _____

Date, Signature
company stamp _____

- You may publishing my name in the list of participants
- Unfortunately I cannot participate.**

Please apply
stamp here

4. NRW Nano-Konferenz

dortmund-project
Töllnerstr. 9-11

44122 Dortmund



Partners:



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