



INVITATION

5th NRW Nano-Conference

Conference/Exhibition/Workshops
Dortmund, 18 – 19 September 2012
Kongresszentrum Westfalenhallen



FOREWORD



Dear Ladies and Gentlemen,

it is our duty to enable progress. This is a clear mandate for action for the political, research and business communities. For today's global challenges such as climate changes, the energy „switch“ and low-impact economic development can only be met by sustainable progress. We need to come up with novel solutions here. The Living Planet Report 2012 provides an answer to the question regarding the resources that will be available on our planet for future generations: By 2030 we would require an equivalent of two planets if we continue to use up our earth's resources at the same rate as hitherto, and by 2050, it would be almost three planets.


This laconic statement highlights the comprehensiveness of the challenges we are faced with. We need developments and progress that are intelligent, sustainable and hence innovative. This, among other things, presupposes forward-looking technologies such as nanotechnology. Together with other ‚Enabling Technologies‘, nanotechnology helps bring about those technological novelties that are a prerequisite for a sustainable development of society.

That is the reason why nanotechnology, along with other key technologies, is at the focus of the North Rhine-West-

phalia government's policy on research. As an industry state, North Rhine-Westphalia, thanks to its technical competencies and outstanding efficiency, has a special responsibility here. The research, business and political communities must join forces towards coming to grips with the global challenges. The 5th NRW Nano-Conference, which will be held in Dortmund on 18 and 19 September, provides an excellent opportunity for this. The conference will be hosted by the North Rhine-Westphalia Ministry of Innovation, Science and Research in cooperation with the Dortmund Economic Development Agency and NMW.NRW Cluster NanoMikro+Werkstoffe, and will be partnered by MST.factory dortmund and the IVAM Microtechnology Association.

This year's conference will be addressing recent developments in nanotechnology, focusing on four subjects: „Graphene“, „Nanotechnology for the environment“, „Nanophotonics“, and „Nanotechnology and safety“. The conference series thus again highlights that nanotechnology is in a position to help solve key issues of the future. The meeting affords a brilliant opportunity for strengthening on-going cooperation projects and making contacts.

I wish the 5th NRW Nano-Conference every success, and may all participants benefit from inspiring exchanges of views and ideas and a fruitful congress.



Svenja Schulze

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

FOREWORD



Dear Reader,

Nano provides both chances and risks. Nano opens up new markets for companies and can create competitive advantages. And nano is still growing in significance. All of this will be focused on this year at the 5th NRW Nano-Conference – which I warmly invite you to participate in. Take part in discussions with experts, find out the facts from the exhibitors and join in the networking at the get-together.

Dortmund really is the right place for this conference: our city has developed into one of the leading locations for micro and nano technology. With 45 companies and around 2,300 employees, Dortmund numbers among the top three largest clusters for this sector in Europe.

The NRW Nano-Conference, this year taking place in Dortmund for the fifth time, has established itself as a platform for innovative technologies. I am delighted that North Rhine-Westphalia has once 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

Economic Development Agency Dortmund



Dear Ladies and Gentlemen,

the NRW Nano-Conference has now become firmly established amongst you – the stakeholders from the worlds of science, business and politics – and its focus on relevant topics means it is a real trendsetter too. Our experience from previous years has shown us how important the Nano-Conference is as a platform for interdisciplinary exchange.

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 all be overcome with nanotechnology. At the same time, nanotechnology contributes toward the economic strength of North Rhine-Westphalia. With over 450 active companies and institutions in the field of nanotechnology, NRW is Germany's top location.

The 5th NRW Nano-Conference is an important step towards North Rhine-Westphalia building on its excellent position in the field of nanotechnology. I wish you all the best for an interesting and successful conference.

A handwritten signature in black ink, appearing to read 'H. Cremer'. The signature is fluid and cursive.

Dipl.-Ing. Harald Cremer

Clustermanager NanoMikro+Werkstoffe.NRW

THE EXPERTS

GRAPHENE – CARBON OF THE 21st CENTURY

The properties of this two-dimensional material are incredible: graphene is phenomenally stable, thin, flexible, transparent and it conducts electricity too. Its areas of application are just as varied as its properties. The spectrum ranges from use in displays and touch screens to solar cells and sensorics. Research is also currently ongoing into using this material in microelectronics. A group of experts looks into production possibilities, marketability and future areas of application as well as its economic relevance.

Coordination: Clustermanagement NanoMikro+Werkstoffe.NRW
The Experts – Graphene: Prof. Dr. Gerd Bacher, University of Duisburg-Essen | Jürgen Kreis, Aixtron SE | Prof. Dr. Heinrich Kurz, AMO GmbH | Prof. Dr. Klaus Meerholz, University of Cologne | Prof. Dr. Stephanie Reich, Free University of Berlin | Dr. Matthias Schwab, BASF | Prof. Dr. Christoph Stampfer, JARA-FIT | PD Dr. Andrey Turchanin, University of Bielefeld

SAFETY AND TOXICOLOGY OF NANOPARTICLES

This year this group of experts is taking a closer look at nanotoxicology – i. e. possible interactions between nanoparticles and biological material. There will be an overview of the issues currently being investigated and some knowledge gaps will be filled in. The experts will also be looking into the following topics: What can the competences already existing in NRW contribute to research connected with nano-safety? Where can research go in future?

Coordination: MST.factory dortmund
The Experts – Safety: Dr. Rolf Buschmann, Consumer Advice CentreNRW | Prof. Dr. Elke Dopp, Bayer MaterialScience AG | Dr. Péter Krüger, Bayer MaterialScience AG | Dr. Wolfgang Luther, VDI Technologiezentrum GmbH | Dr. Jürgen Schneckeburger, Westphalian Wilhelms-University Münster | Prof. Dr. Roland Stauber, University Medical Center of the Johannes Gutenberg University Mainz | Prof. Dr. Reinhard Zellner, University Duisburg-Essen

NANOPHOTONICS – LIGHT IN NEW DIMENSIONS

Photonics is taking up a leading role in climate protection, in questions of mobility, in technologies for modern production locations, in our information society and in medical technology as well. All of these areas require the control and utilization of photons as a driver for innovations. In recent years photonics has developed into a coveted growth sector – a very good reason to look into this varied topic more closely with a group of experts at the 5th NRW Nano-Conference.

Coordination: Clustermanagement NanoMikro+Werkstoffe.NRW

The Experts – Nanophotonics: Prof. Dr. Manfred Bayer, Technical University Dortmund | Dr. Marc Corthout, XTREME technologies GmbH | Prof. Dr. Cornelia Denz, Westphalian Wilhelms-University Münster | Prof. Dr. Georg von Freymann, Nanoscribe GmbH | Dr. Alexander Knobloch, Wincor Nixdorf | Prof. Dr. Peter Loosen, Fraunhofer Institute for Laser Technology ILT | Dr. Jan Meijer, Ruhr-University of Bochum | Guido Vogel, In-nolum GmbH | Prof. Dr. Thomas Zentgraf, University Paderborn

NANOTECHNOLOGY – CHANCES FOR WATER AND AIR

Nanotechnology and environmental protection among other things looks into, global problems such as air, water and ground pollution as well as the increasing use of process water in industrial countries. Efficient resources management, waste reduction and decreasing the use of chemicals are achievements where nanotechnology excels in comparison to conventional environmental technologies. At the 5th Nano-Conference experts present trends in research and development and provide us with an insight into future areas of application where nanotechnology can protect our water and air.

Coordination: IVAM, Microtechnology Association

The Experts – Nanotechnology for the environment: Dr. Ines Bettermann, CUT Membrane Technology GmbH & Co. KG | Prof. Dr.-Ing. Görgе Deerberg, Fraunhofer-Institut für Umwelt-, Sicherheits- und Energietechnik UMSICHT | Dr.-Ing. Stefan Haep, IUTA e.V | Prof. Dr. Andreas Ostendorf, Ruhr-University of Bochum | Ulrich Schulte-Ebbert, Institut für Wasserforschung GmbH | Prof. Dr. Claudia Staudt, BASF SE | Florian Weßling, WESSLING Holding GmbH & Co. KG

CONFERENCE PROGRAMME

- From**
09:00 am Registration for participants
- 10:00 am** **Opening**
Udo Mager, Managing Director
Economic Development Agency Dortmund
- 10:10 am** **Welcome**
Svenja Schulze, Minister for Innovation,
Science and Research for the State of North
Rhine-Westphalia
- 10:25 am** **Developments in Nanoscience-Nanotechnologies: a European perspective and innovation strategy**
Christos Tokamanis, Head of Directorate,
Nanosciences and Nanotechnologies at the
European Commission, Brussels
- 11:10 am** **Graphene – carbon of the 21st century**
The Experts – Graphene: Prof. Dr. Gerd
Bacher, Jürgen Kreis, Prof. Dr. Heinrich Kurz,
Prof. Dr. Klaus Meerholz, Prof. Dr. Stephanie
Reich, Dr. Matthias Schwab, Prof. Dr. Christoph
Stampfer, PD Dr. Andrey Turchanin
- 11:55 am** Lunch break and exhibition
- 13:00 pm** Company presentations in Halls 4 + 5
- 14:00 pm** **The safety and toxicology of nanoparticles**
The Experts – Safety: Dr. Rolf Buschmann, Prof.
Dr. Elke Dopp, Dr. Péter Krüger, Dr. Wolfgang
Luther, Dr. Jürgen Schnekenburger, Prof. Dr.
Roland Stauber, Prof. Dr. Reinhard Zellner



One of the greatest for the smallest

The nanotechnology location of
NRW in dialogue

14:45 pm **Nanophotonics –
Light in new dimensions**
The Experts – Nanophotonics: Prof. Dr. Manfred Bayer, Dr. Marc Corthout, Prof. Dr. Cornelia Denz, Prof. Dr. Georg von Freymann, Dr. Alexander Knobloch, Prof. Dr. Peter Loosen, Dr. Jan Meijer, Guido Vogel, Prof. Dr. Thomas Zentgraf

15:30 pm Coffee break and exhibition

16:00 pm **Nanotechnology –
Chances for water and air**
The Experts – Environment: Dr. Ines Bettermann, Prof. Dr.-Ing. Gorge Deerberg, Dr.-Ing. Stefan Haep, Prof. Dr. Andreas Ostendorf, Ulrich Schulte-Ebbert, Prof. Dr. Claudia Staudt, Florian Weling

17:00 pm Evening programme in Hall 8

17:15 pm “Best of” Die Physikanten

18:15 pm Buffet and get together

Chairman: Harald Cremer,
Clustermanagement NMW.NRW
Michaela Franzes,
Economic Development Agency Dortmund

GRAPHENE

Organization

Clustermanagement NanoMikro+Werkstoffe.NRW

Chairman

Dr. Heinz-Georg Nothofer, Cluster NMW.NRW

09:30 am **Dr. Heinz-Georg Nothofer,**
Cluster NMW.NRW
Welcome

Prof. Dr. Rolf Mülhaupt,
Albert-Ludwigs-University Freiburg
"From graphite to graphenes: new carbonhy-
brid materials and 3D printing of graphene
batteries"

Mr. Ken Teo,
Aixtron SE, Cambridge, UK
"Scaling graphene and carbon nanotubes
over 300mm wafers"

Prof. Dr. Andreas Offenhäusser,
Forschungszentrum Jülich
"Graphene Transistor Arrays for Recording
Action Potentials from Electrogenic Cells"

Dr. Anne Köhnen,
University of Cologne
"Graphene in organic electronics"

Dr. Daniel Neumaier,
AMO GmbH, Aachen
"Graphene transistors: Prospects and
challenges for future applications"

11:30 am **End of session**

11:30 am **Exhibition and snack**

12:30 pm **Company presentations in Halls 4 + 5**

ENVIRONMENTAL TECHNOLOGY

Organization

IVAM, Microtechnology Association

Chairman

Heinz-Peter Hippler, IVAM

09:30 am **Heinz-Peter Hippler, IVAM**
Welcome

Peter Bolduan,
atech innovations GmbH, Gladbeck
"Ceramic nano-powder for filter production – examples für industrial applications"

Dr. Bertram Boehringer,
Blücher GmbH, Erkrath
"Nanoporous polymer-based spherical activated carbons: production, properties and application"

Markus Grafen,
IANUS Simulation GmbH, Dortmund
"Detecting damaging nanoparticles in the atmosphere using Raman-spectroscopy"

Axel Schiemann,
NADICO Technologie GmbH, Langenfeld
"Photocatalytic air purifying based on nano titanium dioxide"

N.N.
IUTA e.V., Duisburg
"Opportunities for gas and aerosol filtration through nanotechnology"

11:30 am **End of session**

11:30 am **Exhibition and snack**

12:30 pm **Company presentations in Halls 4 + 5**

Organization

Clustermanagement NanoMikro+Werkstoffe.NRW

Chairman

Dr. Peter Schorn, Cluster NMW.NRW

13:30 pm **Dr. Peter Schorn,**
Cluster NMW.NRW
Welcome

Prof. Dr. Georg von Freymann,
Nanoscribe GmbH, Eggenstein-Leopoldshafen
"3D Nanolithography – Towards artificial
extracellular matrices"

Prof. Dr. Martin Hofmann,
Ruhr-University-Bochum
"New optical procedures for biomedical
imaging"

Prof. Dr. Jeremy Witzens,
RWTH Aachen
"Silicon Nanophotonics in
Telecommunications"

Prof. Dr. David DiVincenzo,
Forschungszentrum Jülich
"Quantum Computation"

Dr. Christoph Giesen,
Aixtron SE, Herzogenrath
"Semiconductor-nanowires for solarcells and
light diodes"

15:30 pm **End of session**

15:45 pm **Conference ends with a visit to the Signal
Iduna Park stadium**

Organization

MST.factory dortmund/TZM GmbH

Chairman

Dr. Thomas Richter, MST.factory dortmund

13:30 pm **Dr. Thomas Richter,**
MST.factory dortmund
Welcome

Dr. Steffi Friedrichs,
NIA – Nanotechnologies Industries
Association, Brussels
“Nano-specific policies & regulations: past,
present & (most likely) future developments”

Dr. Reinhard Kersting,
Tascon GmbH, Münster
“Under the chemical magnifying glass:
Characterising nanoparticles with ion beam
technologies”

Dr. Annette Kraegeloh,
INM – Leibniz Institute for New Materials
gGmbH, Saarbrücken
“Particles: Size and biological relevance”

PD Dr. Bernd Nowack,
EMPA, St. Gallen
“Modelling concentrations and environmental
impacts of nanomaterials”

Christian Schumacher,
IFA Institute for Occupational Safety
and Health of the German Social Accident
Insurance, St. Augustin
“Detection, impact and avoiding exposure”

15:30 pm **End of session**

15:45 pm **Conference ends with a visit to the Signal
Iduna Park stadium**

WELCOME



The interdisciplinary technologies of micro and nanotechnology are also of great significance when it comes to the question of environmental technology. Nano-coated membrane filters for efficient waste water treatment or new measurement procedures for detecting and analysing nanoparticles are just two small examples of the wide variety of uses for micro and nano technologies. In NRW IVAM is the largest nationwide association for microtechnology keeping its members up-to-date and at the cutting edge. Together with the universities and companies from the region, we provide anyone who is interested with the chance to find out about the current situation. We are continuing this dialogue in the 5th NRW Nano-Conference to provide the chance to strengthen positions in face of intensive international competition.

Heinz-Peter Hippler,
Managing Director IVAM, Microtechnology Association



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, the 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 5th NRW Nano-Conference to find out in detail about current developments and innovations in nanotechnology and to make new contacts.

Dr. Thomas Richter,
Centre Manager, MST.factory dortmund

DIRECTION/CONTACT

By car:

Direct connections via the B 1 (A 40) from the autobahns 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 U 45 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:

dortmund-project
Michaela Franzes/
Kurt Pommerenke
Töllnerstraße 9–11
44122 Dortmund

info@nanokonferenz.de
Fon: +49(0)231 50-29 211/219
Fax: +49(0)231 50-24 112
www.nrw-nanokonferenz.de

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

- 5th NRW Nano-Conference
- Evening programme

- Session 1: Graphene
- Session 2: Nanotechnology and environment
- Session 3: Nanophotonics
- Session 4: Safety
- Visit to the Signal Iduna Park stadium

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

Please send us your registration by 10.09.2012 by post or by fax to: +49 (0)231/50-2 41 12.

Online registration at: www.nrw-nanokonferenz.de

Name, first name

Company/organisation

Street, number

Postcode, town

Telephone

Email

Date, signature

Company stamp

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

please
apply
stamp here

5th NRW Nano-Conference

dortmund-project
Töllnerstr. 9 – 11

44122 Dortmund



Partners:



dortmund-project



MST.factory
dortmund

