



# Small ideas make it big in Germany

Get to know eight strong partners from Nanotech Germany



Research in  
Germany  
  
Land of Ideas

# Welcome to Nanotech Germany

*The nanoblock. One of the tiniest components in the world. Developed at Brunswick TU, Germany*

**This 100-nanometre-sized piece of metal is formed using a mini anvil and a mini hammer. A future technique which could be applied to producing tiny trephines for unblocking arteries. As the nanoblock proves: size tells us nothing about the hugeness of an idea.**

## Partners for the future

Welcome to Nanotech Germany

Without nanotechnology our lives would be unimaginable. Nearly all branches of industry profit from the progress being made in nano research. While at the same time, nanotechnology still has a wealth of innovative potential to exploit.

Germany has set itself the goal of becoming a pacemaker, decisively shaping the future of nanotechnology – even today, German researchers are right up front in third place in the international league table for patent applications.

In 2008 and 2009, the nanotechnology location Germany is showcasing itself internationally in the context of the “Welcome to Nanotech Germany” initiative. The object is to step up cooperation between German and international research establishments and enterprises.

At international fairs, such as nanotech Japan 08, NSTI Boston 08, China International Industry Fair 08, and nanotech Japan 09, interested partners are being given the opportunity to make contact with German research establishments and innovative enterprises. On top of this, presentations are planned for special congresses and conferences as well as workshops, partnering events and symposia.

## Fraunhofer Nanotechnology Alliance (FNT)

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### A brief profile

20 Fraunhofer Institutes have joined forces to foster the industrial implementation of nanotechnologies. They cover all NT-relevant areas from molecular modelling, analytics, material synthesis (top-down and bottom-up), processing up to technology consulting for small and medium-sized enterprises (SME) and safety aspects of new nanomaterials. Main application fields are coatings, polymer nanocomposites, ceramics, carbon-nanotube-based actuators and biomedical systems.

### Activity in the context of Welcome to Nanotech Germany

FNT will present the competencies of the alliance at Nanotech 2008 and 2009 in Tokyo together with two SME partners (micro resist technology GmbH, Future Carbon GmbH) and will initiate SME workshops in Germany for nanotechnology applications.

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## Network: Modular X-ray Optics

### A brief profile

The Modular X-ray Optics network stands for manufacturing and combining X-ray sources, different types of X-ray optics and ultra-precision positioning systems. AXO DRESDEN GmbH, Fraunhofer IWS Dresden, HUBER Diffraktionstechnik GmbH & Co KG and IfG GmbH established close collaboration to develop and fabricate new and flexible techniques and instrumentation for X-ray analytics. Benefits of this collaboration include the customised arrangement and handling of optimum and flexible X-ray sources and optics adjusted to the actual analytical problem.

### Activity in the context of Welcome to Nanotech Germany

Actual projects are the development of modular solutions of complex X-ray systems in the hard and in soft X-ray regime and the development of solutions for focusing systems: Schwarzschild Objectives for applications in the EUV and in the Water-Window-range, for example.



## NanoBioNet e.V.

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### A brief profile

NanoBioNet is an efficient network of universities, research institutes, clinics and businesses from the areas of development, production, industry and commerce and technology transfer. The members come from various sectors such as biotechnology, the chemical nanotechnology or medical technology. Each individual member contributes to a broad spectrum in the process, which makes the system attractive for all participants. All of the members are interested in research and development, as well as the practical applications of nanotechnology and biotechnology for the creation of marketable products and new jobs - and achieve this through an ethically justifiable technology. New products, processes and services represent the top research, innovations and growth of the region.

### Activity in the context of Welcome to Nanotech Germany

- International PR to strengthen the visibility in international media
- Effective online-marketing in the target-regions
- Site-directed and supporting actions for foreign performances
- International Networking in the target-regions

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## Smart Systems Campus Technopark Chemnitz

### A brief profile

The Smart Systems Campus, an innovative network with expertise available for young, dynamic start-up companies, is being created at Chemnitz, the microsystems and nanotechnology centre, especially for firms that value direct access to renowned scientific institutes and leading international companies. The "Smart Systems Campus" is distinguished by compact coverage to improve timing and communication in common projects.

### Activity in the context of Welcome to Nanotech Germany

Within the Welcome to Nanotech Germany project the Smart Systems Campus Technopark Chemnitz will present its competences in micro- and nanotechnologies research and development as well as the perfect conditions for start-up companies and small and medium-sized companies working with nano- and microsystem technologies, close to Chemnitz University of Technology and the Chemnitz Fraunhofer Institute for Reliability and Microintegration.

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## Baden-Württemberg International – Agency for International Economic and Scientific Cooperation (bw-i)

#### A brief profile

Baden-Württemberg International is a modern provider of services for international cooperation, and scientific and economic development. Our mission is to optimally position Baden-Württemberg in worldwide competition as a location for science, research, higher education and business. NanoMat is a national network for nanotechnology materials created by commercial companies and research institutions. It promotes knowledge and technology transfer from science to business and vice versa, and supports talented young researchers.

#### Activity in the context of Welcome to Nanotech Germany

Our project aims to initiate cooperation between research institutions and especially young researchers from Germany and Japan. Planned activities are two German-Japanese young researchers' workshops (2008 in Japan, 2009 in Germany) as well as participation in nanotech Tokyo 2008 and 2009. Also, we will participate in the Nanofair 2009 in Karlsruhe, Germany. In addition, we will arrange visits to research facilities in Germany and Japan for enterprises and researchers from both countries.

#### Contact person/information

IVAM

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## IVAM Microtechnology Network

#### A brief profile

IVAM is an international association of companies and institutes in the fields of microtechnology, nanotechnology and advanced materials. At present, more than 260 companies, institutes and partners from all over the world are IVAM members. As the communicative bridge between suppliers and users, IVAM brings innovations to market and creates competitive advantages via technology marketing. Furthermore, IVAM offers lobbying services for small and medium-sized enterprises, qualification, various publications and worldwide networking at trade fairs and events.

#### Activity in the context of Welcome to Nanotech Germany

IVAM extends invitations to major trade fairs in Germany. We create business contacts at our joint pavilions and international forums at MicroTechnology/HANNOVER MESSE 2008 and COMPAMED/MEDICA 2008. IVAM provides orientation in markets through the annual IVAM directory, a comprehensive index of more than 260 member profiles. Part of our activities is the promotion of the IVAM network on foreign trade fairs. Therefore we cooperate with international partners like the Micromachine Center in Japan or the Korea Advanced Nano Fab Center (KANFC) in Korea.



## Network on Nanotechnology-based Optical Sensing

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### A brief profile

The network focuses on nanostructured semiconductor lasers for optical sensing. Using semiconductor quantum dots, the spectral range of laser emission can be extended considerably compared to currently used layer structures. By using nano-fabricated gratings, single-mode (distributed feedback) lasers as well as tuneable lasers are obtained in the wavelength range from about 0.7  $\mu\text{m}$  to 3  $\mu\text{m}$  and beyond. Examples of research supported by the German Ministry of Education and Research and the EU will be presented to stimulate cooperation between international and German companies and R&D groups.

### Activity in the context of Welcome to Nanotech Germany

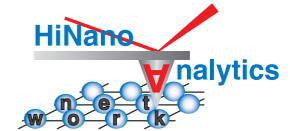
- International research marketing on nanotechnology-based gas sensing with semiconductor lasers
- Support of application-oriented research, i.e. collaborations on the development, fabrication and characterisation of semiconductor nanostructures for optoelectronic applications

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## HiNanoAnalytics

### A brief profile

The HiNanoAnalytics network links scientific excellence in basic and applied research targeted at the commercialisation of advanced nano-based analytical technologies and instruments. HiNanoAnalytics actively supports the transfer of outstanding research into innovative products, as well as developing novel methods in diagnostics and therapies. Manifold novel biomedical applications using advanced nano-particles are under current investigation.

### Activity in the context of Welcome to Nanotech Germany

Within the Welcome to Germany framework, HiNanoAnalytics is going to increase the international awareness of the German excellence in high-performance analytics in order to broaden the network by cooperation with the international scientific nano community as well as with companies. Potential customers should be attracted by the cutting edge nano-analytical products. With respect to the outstanding conditions in Germany, international nanoscientists are invited and will be supported to develop their career within the German nano community.



# Research in Germany



## Land of Ideas

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