Nanotechnology Networking in Germany

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Competence Network for Nanomaterials (NanoMat)
Outline

• Nanotechnology Competence Centers (CCNanos) in Germany
  - History and Status

• Consortium of the Nanotechnology Competence Centers in Germany (AGeNT-D)
  - Structure and Management
  - Topics and Goals
  - Outlook

• AGeNT-D at the nano tech 2008
History of the Competence Centers in Germany

• The situation 10 years ago:
  Strong specialization of location and personnel (industry, research)
  → Networks of partners from business, science, politics and an infrastructure which promotes competence were required for innovation.

• Call of the German Ministry of Education and Research (BMBF) to establish CCNanos in 1998
• At the beginning 6 nationwide CCNanos, each with a strong thematic focus
• Members: research institutions, universities, industries, others

• Over the last years with increasing relevance of nanotechnology
  - New CCNanos because of re-organization
  - New funding models with concentration on regional subjects
  - Development of similar organization platforms
  - Cross-linking of CCNanos
  → New kind of organizational structure was needed: AGeNT-D
Map of AGeNT-D

CCNanos - spread all over Germany
Management of AGeNT-D

- Consortium of nine German Nanotechnology Competence Centers
- Financial support by the Federal Ministry of Education and Research
  2.4 Mio Euros, thereof 1.4 Mio Euros for so-called feasibility studies
- Start: 1st February 2007 (promotion period: 4 years)
- Open to new members

- Management: CCNano Optoelectronics
  (at the Technical University of Berlin)
  - Managing Director: Prof. Dr. D. Bimberg
  - Head Office Manager: Dr. S. Rodt
  - Executive Board: Spokespersons of the CCNanos
CC NanoChem e.V. –
CC Chemical Nanotechnology, Saarbrücken
www.cc-nanochem.de

- Nanoparticle technologies for industrial applications
- Surface technologies for innovations in all areas
- Nanomaterials for Life Sciences

CeNTech GmbH - Center for Nanotechnology, Münster
www.nanoanalytik-muenster.de

- Optimisation of scanning probe and imaging microscopy methods
- Investigation of new materials and nanoscale structures
- Exploration of biophysical effects, mainly intra- and intercellular processes
- Formulation of micro fabrication processes to reproduce biological and biochemical systems
ENNaB – Excellence Network NanoBiotechnology, Munich
www.ennab.de

- Network of research groups of excellent young scientists and enterprises of the region Munich/Bavaria in the area nano- and nanobiotechnology
- Link between institutional fundamental research and economic application

INCH - Interdisciplinary Nano Science Center Hamburg
www.inch-hamburg.de

- Research Center of Hamburg with focus on interdisciplinarity
- Strong co-operation and merging of traditional disciplines
- Investigation of complex problems in nanoscience and nanotechnology
NanOp - CC NanoOptoelectronics, Berlin
www.nanop.de

- Application of lateral nanostructures, nanoanalytical methods and optoelectronics

NanoBioNet e.V. – CC Nanobiotechnology, Saarbrücken
www.nanobionet.de

- Focus on the topic nanobiotechnology
- Establishing methods to develop physiologically safe and biocompatible materials and surfaces using biomimetic processes
- Mainly regionally oriented on Saarland/Rhineland-Palatinate
NanoMat - Network Nanomaterials, Karlsruhe
www.nanomat.de

- Main topic: Synthesis and investigation of nanostructured materials and functions arising from their nanoscale nature.
- Super-regional network of 31 partners:
  8 enterprises (e.g. BASF AG, BMW AG, Evonik Degussa GmbH, Merck KGaA, Robert Bosch GmbH),
  9 universities, 12 research institutions, one assurance and the DECHEMA
Consortium of Nanotechnology Competence Centers in Germany

UFS - CC Ultrathin Functional Films, Dresden
www.nanotechnology.de

- 6 research groups:
  - advanced CMOS,
  - new devices,
  - biological molecular layers for medicine and engineering,
  - nanometer scaled protective layers,
  - thin layers for optics and photonics,
  - nanoscaled sensors, actors and systems

UPOB e.V. - CC Ultra-precise Surface Figuring, Braunschweig
www.upob.de

- Technical function surfaces in the nanometre range with regard to measure, shape, position and surface accuracy
- Keywords: Production methods, machines and machine components, metrology, sensor technology and materials for macroscopic products
Tasks and Goals of AGeNT-D

• Development of mutual R&D strategies
  - German key players are represented by the networks
  - Executive board ideal platform to develop research strategy

• Political advisory work
  - AGeNT acts as contact point to the ministries
Tasks and Goals of AGeNT-D

- Strengthening of supraregional networking and international co-operation
  - German contact point for international activities
  - Organization of visits and delegation tours

- Strengthening of technology transfers within and between the networks
  - Overall competence matrix
  - Management of requests: fast forwarding to experts
Tasks and Goals of AGeNT-D

• Education and advanced training

• Standardization

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Secretary IEC/TC113: "Nanotechnology Standardization for Electrical and Electronic Products and Systems"
Tasks and Goals of AGeNT-D

• Constitution of mutual public relations

• Grant of nanoscience awards
Outlook

• Long-term goal
  Transfer of the consortium into a incorporated society
  (organizational structure: association)
  → Funding by members (industry, research)

• Alternative
  CCNanos focus on regional projects again
  → Support from local facilities/institutions
    (e.g. universities, research institutions, etc.)