

Location: Aula, Rostock University, Universitätsplatz 1

**Organizing Committee:** Prof. Eberhard Burkel, Prof. Ursula van Rienen, Prof. Olaf Keßler, PD Dr. habil. Barbara Nebe, Prof. Dieter G. Weiss, Prof. Hermann Seitz, Prof. Christoph Schick, Prof. Wolfram Mittelmeier, Prof. Heinrich Stolz

**Thursday, June 26<sup>th</sup> 2008**

### Session: Introduction

Chair: **Prof. Eberhard Burkel**, Institute of Physics, University of Rostock, Funktionale Materialien Rostock e.V.

**Prof. Wolfram Mittelmeier**, Dept. of Orthopedics, Faculty of Medicine, University of Rostock

**9:00 Opening / Grußworte**

Rector of the University of Rostock

**9:15 New developments in FP7 - specific focus on regenerative medicine and biomaterials**

**Prof. Arnd Hoeveler**, European Commission, Brussels, Belgium

**9:45 DNA-nanoparticles for local gene therapy in wound healing**

**PD Dr. Heike Hall**, ETH Zürich, Department of Materials, Cells and BioMaterials

**10:30 Order is everything - nanostructures and functionalities in biomaterials and polymers**

**Prof. Klaus D. Jandt**, Institute of Materials Science and Technology (IMT), Friedrich-Schiller-University Jena

**11:15 Nanopowders - production and applications**

**Dr. Gerhard Gille**, Fa. H.C.Starck, Central Research and Development Division

**12:00 Lunch Break**

### Session: New Materials and Technologies I

Chair: **Prof. Christoph Schick**, Institute of Physics, University of Rostock

**13:15 Polymer-matrix nanocomposites: from the in situ polymerization to biomedical Applications**

**Prof. Mirosława El Fray**, Division of Biomaterials and Microbiological Technologies, Szczecin University of Technology, Poland

**14:00 Dissolution of hydrogen bonded polymers in superheated water; from synthetic to biopolymers**

**Prof. Sanjay Rastogi**, Eindhoven University of Technology, Polymer Technology, The Netherlands

**14:30 Coffee Break**

### Session: Öffentlicher Vortrag (auch für Schüler)

**15:00 Chancen und Risiken der Nanotechnologie**

**Prof. Wolfgang Heckl**, Generaldirektor des Deutschen Museums München, Kompetenzzentrum Nanobiotechnologie München, Geo- und Umweltwissenschaften Universität München

### Session: New Materials and Technologies II

Chair: **Prof. Olaf Keßler**, Materials Science, Faculty of Mechanical and Marine Engineering, University of Rostock

**16:10 Heat Treatment, quenching and simulation of steel**

**Prof. Dr. Ing. Franz Hoffmann**, Stiftung Institut für Werkstofftechnik, Bremen

**16:50 Spray forming and heat treatment of aluminium alloys**

**Dr. Peter Krug**, PEAK Werkstoff GmbH, Velbert

**17:30 Continuous cooling precipitation diagrams of aluminium alloys**

**Dipl.-Ing. B. Milkereit**, Material Science, University of Rostock

**17:55 Induced Structure Stability and Phase Transformation of Carbon Nanotubes**

**Dr. Faming Zhang**, New Materials, University of Rostock and Ceramics Institute of Shanghai

### Session: Interface Functionality I

Chair: **Prof. Dieter Weiss**, Institute of Biological Science, University of Rostock

**18:20 New Insights into the neuron-to-microelectrode array**

**PD Dr. Heike Hall**, ETH Zürich, Department of Materials, Cells and BioMaterials

**18:50 Regeneration of endocrine cells from pancreatic stem cells**

**Prof. Matthias Löhr**, Department of Surgical Gastroenterology, Stockholm, Sweden

**20:00 Harbor Cruise with Buffet**



**Friday, June 27<sup>th</sup> 2008**

### Session: Nanotechnology and Biology

Chair: **PD Dr. Barbara Nebe**, Biomedical Research Center, Cell Biology, University of Rostock

**8:15 Tissue Engineering of bone - limitations of 3D culture in vitro**

**PD Dr. Matthias Schieker**, Experimental Surgery and Regenerative Medicine, University of Munich

**8:45 Mesenchymal stem cells for tissue engineering and regenerative medicine – challenges and limitations**

**PD Dr. Kirsten Peters**, Biomedical Research Center, University of Rostock

**9:15 3d-Printing of ceramic scaffolds for bone tissue engineering**

**Prof. Hermann Seitz**, Microfluidics, Faculty of Mechanical and Marine Engineering, University of Rostock

**9:45 Coffee Break**

### Session: Interface Functionality II

Chair: **Prof. Heinrich Stolz**, Institute of Physics, University of Rostock

**10:15 Recording potential of magnetic thin films on self-assembled nano-spheres**

**Dr. Alexander Goncharov**, University of Sheffield, Department of Engineering Materials, UK

**10:45 Multiscale micromagnetic simulations**

**PD Dr. Dieter Suess**, University of Vienna and Suess Co KG, Herzogenburg, Austria

**11:15 Magnetic Lab-on-a-Chip for Biomedical Diagnostics**

**Univ.-Doz. Dr. Hubert Brückl**, Nano-System-Technologies, Austrian Research Centers GmbH ARC, Austria

**11:45 Quantum Dots: Artificial Atoms for Everyday Life**

**Prof. Manfred Bayer**, University of Dortmund, Department of Physics

**12:15 Lunch Break**

### Session: New Frontiers in Material Science

Chair: **Prof. Eberhard Burkel**, Institute of Physics, University of Rostock, Funktionale Materialien Rostock e.V.

**Prof. Dr.-Ing. Hermann Seitz**, Microfluidics, Faculty of Mechanical and Marine Engineering, University of Rostock

**13:30 In situ studies of catalyst surfaces**

**Prof. Robert Schlögl**, Fritz-Haber-Institut der MPG, Berlin

**14:15 Microwave Materials Processing: In situ analysis**

**Dr. Sebastien Vaucher**, EMPA, Werkstofftechnik, Switzerland

**14:45 Tracking Nanoparticles in Cells and Tissues by Systemic Microscopy.**

**Dr. H.-H. Hohenberg**, Director, Heinrich-Pette-Institut für Virus Research (Leibniz Institute), Hamburg-Eppendorf

**15:15 Organ Printing: promises and challenges**

**Prof. Vladimir Mironov**, Medical University of South Carolina

**16:00 Closing Remarks**

### Possible Site Visits:

- Research Center of Biosystems Technology and Biomaterials, Rostock-Warnemünde (Profs. Schmitz, Weiss, Stoll)
- Live Cell Imaging Center, University of Rostock, Inst. of Biological Sciences (Prof. D.G. Weiss)
- Biomedical Research Center, Rostock (PD Dr. B. Nebe)

## New Materials

The development of new materials and their engineering on nanoscopic lengthscales is maturing to an important key technology of this decade. The relevant technological properties of materials change if they contain structures of characteristic length scales of few nanometers. Besides the pure size reduction new interfacial effects gain influence.

Internationally recognized lecturers from academia, research centers and industry will present overviews and latest results in selected topics in this interdisciplinary event.

PhD students from Rostock University will present their results.



Students, PhD students and interested colleagues, as well as representatives from industry are welcome to join these Materials' Days Rostock 2008.



### Contact and further information:

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## General Information

This workshop represents parts of the growing Material Science activities promoted within the interdisciplinary research topic at Rostock University.

Materials' Days Rostock 2008 are performed at the auditorium (Aula) in the Main Building of the University of Rostock. This location is in the city center of Rostock.

There is free admittance to all sessions. Public is welcome. Participants should register their accommodation on their own.



Main Building of the University of Rostock,  
Universitätsplatz 1  
(tram stop Lange Straße)



Aula inside the Main Building of  
of the University of Rostock

# MATERIALS' DAYS ROSTOCK 2008

Material Science at  
ROSTOCK UNIVERSITY

[www.uni-rostock.de/tycho](http://www.uni-rostock.de/tycho)



## Functional Materials and Nanotechnology

June 26<sup>h</sup> - June 27<sup>h</sup> 2008

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