

MATERIALS' DAYS ROSTOCK 2008

June 26th - June 27th 2008



Material Science at
ROSTOCK UNIVERSITY
www.uni-rostock.de/tycho



Functional Materials and Nanotechnology

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.

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 26th 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 27th 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 for 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)



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

Contact and further information:

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