



## General Information

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

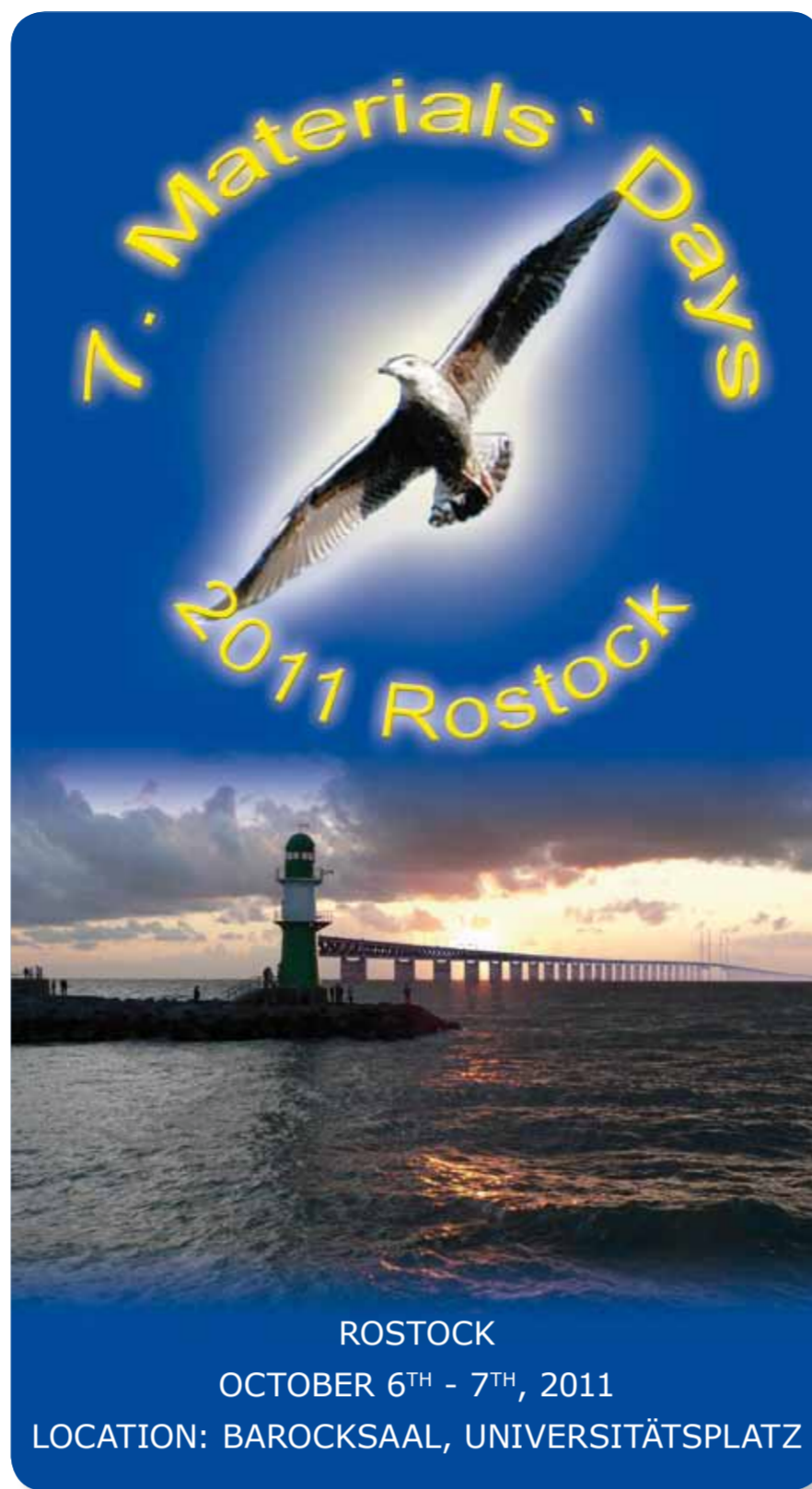
The 7. Materials' Days will be performed on October 6th and 7th in the Barocksaal of Hansestadt Rostock (Universitätsplatz).

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

## 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. Some PhD students from Rostock University will show their results, as well.



**ROSTOCK**  
OCTOBER 6<sup>TH</sup> - 7<sup>TH</sup>, 2011  
LOCATION: BAROCKSAAL, UNIVERSITÄTSPLATZ

organized by

Prof. Dr. E. Burkel

University of Rostock, Institute of Physics

eberhard.burkel@uni-rostock.de

info@materials-days.eu

## About the event

The development of New Materials and their engineering for a wide range of applications matured to an important key technology of this decade. The relevant technological properties can be influenced in a variety of exciting new ways.



The VII. Materials Days' Rostock focus on New Materials, Life Sciences and Environment and Energy for general Material Sciences welcoming cross-disciplinary approaches.

They strengthen the efforts of the transnational initiatives Science Corridor, the Oresund Materials Platform and the Baltic Networks and they address researchers from industry and academia from the greater Baltic region and beyond this to create a successful network also in the education and training of young people.

If you have interest to present a poster in this context you should contact the organizer.

# Program of the 7. Materials' Days

## Thursday October 6<sup>th</sup>



Introductory Session		
9:00	Welcome/Grußworte	Roland Methling, Major of the Hansestadt Rostock (invited) Prof. Wolfgang Schareck, Rektor of Rostock University
9:15	Template based Synthesis of 3D Nanostructures by Atomic Layer Deposition	Prof. Kornelius Nielsch, Institute of Applied Physics, University of Hamburg
10:00	Processing of hybrid materials by PECS	Prof. Simo-Pekka Hannula, Materials Science and Engineering, Aalto University, Espoo, Finland
10:30	Coffee break	
11:00	In Situ Experiments with neutrons and synchrotron radiation in Materials Science	Prof. Andreas Schreyer, Materials Physics, Institute of Materials Research, Helmholtz-Zentrum Geesthacht Zentrum für Material- und Küstenforschung, Geesthacht Head of GEMS - German Engineering Materials Science Centre
11:45	High Sensitive Magneto-Electro-Optic detection platforms	Dr. Eugen Gheorghiu, Director, International Center of Biodynamics, Bucharest, Romania
12:15	Lunch break	
Session: Nanoparticles		
14:00	Preparation of nanoparticles by thermal plasma or chemical technique and their processing.	Prof. Janis Grabis, Institute of Inorganic Chemistry, Riga Technical University, Latvia
14:30	Interaction of nanoparticles in liquids at rest and under flow fields	Professor Adrian R. Rennie, Materials Physics, Dept. of Physics & Astronomy Uppsala University, Uppsala, Sweden

Session: Functional Materials I		
15:00	Atomic layer deposition of metals and metal oxides: from research to applications.	Dr. Kaupo Kukli, Institute of Physics, University of Tartu, Estonia
15:30	Coffee break	
16:00	Advanced ceramic matrix composites	Prof. Dr. habil. Eng. Lucyna Jaworska, Department of Materials Science and Engineering, Institute of Advanced Manufacturing Technology, Krakau, Poland
16:30	Additive Manufacturing with Selective Electron Beam Melting	Dipl.-Phys. Matthias Cornelsen, Fluid- and Microfluidics, Faculty of Mechanical Engineering, University of Rostock
17:00	Failure analysis of medical implants: importance of design, material (defects) and operational loading	Dr.-Ing. Ronald Wallstabe, BAM Federal Institute for Materials Research and Testing, Berlin
17:30	Break	
Session: Public Lecture / Öffentlicher Vortrag (in German)		
18:00	Bioinspirierte Haftstrukturen	Prof. Eduard Arzt, New Materials, Saarland University, Scientific Director and Chairman (CEO) of INM - Leibniz Institute for New Materials, Saarbrücken



## Friday October 7<sup>th</sup>

Session: Nanotechnology and Functional Materials		
9:00	Magnetic and Magnetotransport Properties of Glass Coated Microwires	Prof. Julian Gonzalez, Dept. Materials Physics, University of the Basque Country, San Sebastián, Spain
9:40	Novel functional materials based on nanoporous metals	Prof. Dr.-Ing. Jörg Weismüller, Institute for Material Physics and Technology, Technical University Hamburg-Harburg, Hybrid Material Systems, Helmholtz-Zentrum Geesthacht Zentrum für Material- und Küstenforschung

10:20	Coffee break	
10:40	Synthesis of calcium phosphates and their application in medicine	Prof. Dr. sc. Ing. Liga Berzina-Cimдина, Institute of General Chemical Engineering, Riga Technical University, Latvia
11:20	Novel titanium alloys and foams by SPS for biomedical applications	Dr. Fames Zhang, Physics of New Materials, University of Rostock
11:50	Cell-Material Interaction on functionalized surfaces	Prof. Dr. J.G. Barbara Nebe, Cell Biology, Center for Medical Research, University of Rostock
12:20	Lunch Break	
Session: Nanostructured Materials and New Technologies		
13:30	Cellular Biosensors	Dr. Eugen Gheorghiu, Director, International Center of Biodynamics, Bucharest, Romania
14:15	PoreGenic - A new tool for the analysis of intracellular potentials of adherent cells	Dr. Oliver Klank, Biophysics, University of Rostock
14:45	Biomaterials for stem cell enhancement	PD Dr. Nan Ma, Department of Biocompatibility, Centre for Biomaterial Development, Institute of Polymer Research, Helmholtz-Zentrum Geesthacht
15:15	Coffee break	
Closing Session		
15:30	Magnetoreception mechanisms in birds - towards the discovery of the sixth sense	Dr. Ilia Solov'yov, Beckman Institute for Advanced Science and Technology University of Illinois at Urbana-Champaign, USA



Eurasian Crane, Photo: Steve Garvie

## Site Visits Upon Appointment

- Research Center of Biosystems Technology and Biomaterials, Rostock-Warnemünde
- Live Cell Imaging Center,
- University of Rostock, Inst. of Biological Sciences
- Biomedical Research Center, Rostock
- Tycho Laboratories Rostock-Sinterfacility, Rostock

supported by



Funktionale Materialien Rostock e.V.



IPP made in Germany  
International Postgraduate Programme  
Internationale Promotionsprogramme



Wissen, Technologie, Märkte