



MAPEX COMMUNITY

People

II MAPEX EXECUTIVE BOARD

The Executive Board (EB) is the central decision making committee of MAPEX and is composed of ten Principal Investigators (PI) and two Early Career Investigators (ECI), all of them have a mandate for the duration of two years.



Prof. Dr. Marcus Bäumer

UFT
Leobener Straße
28359 Bremen
☎ +49 (0)421 218 - 63171
✉ mbaeumer@uni-bremen.de
www.iapc.uni-bremen.de/baeumer/

Affiliations

- Faculty of Biology/Chemistry
- Chair: Physical Chemistry
- Center for Environmental Research and Sustainable Technology (UFT)
- Speaker FOR 2213

Research Landscape

Porous Materials, Nanomaterials, Materials Characterization, Materials Synthesis, Materials Modelling

Research Focus: We study innovative nanostructured materials and aim at exploring their potential at heterogeneous catalysts. For that purpose we often combine experiments on catalysts at typical reaction conditions with studies on carefully chosen, well-defined model surfaces, either experimental in ultrahigh vacuum or by calculations within density functional theory.



Prof. Dr. rer. nat. Ralf B. Bergmann

MAPEX vice speaker
BIAS GmbH
Klagenfurter Straße 2
28359 Bremen
☎ +49 (0)421 218 - 58002
✉ bergmann@bias.de
www.bias.de

Affiliations

- Faculty of Physics/Electrical Engineering
- Chair: Photonic Microsystems
- Bremen Institute for Applied Beam Technology (BIAS), director of optical metrology and optoelectronic systems division

Research Landscape

Photonics, Materials Characterization

Research Focus: Optical and opto-electronic Systems: Optical metrology using geometrical and coherent optics, methods for optical non-destructive testing, micro- and nano optics, optic design, photonics for information processing.



Prof. Dr. Michael Böhm

MZH
Bibliothekstrasse 1
28359 Bremen
☎ +49 (0)421 218 - 63841
✉ mbohm@math.uni-bremen.de
www.zetem.uni-bremen.de

Affiliations

- Faculty of Mathematics/Computer Science
- Chair: Modelling and Partial Differential Equations
- Center for Industrial Mathematics (ZeTeM)

Research Landscape

Process Modelling, Metals

Research Focus: The group works on mathematical models of chemical and mechanical processes in materials with complex microstructures (e.g. steel) as well as in the field of mathematical analyses of systems resulting from partial and ordinary differential equations. Furthermore, the derivation of averaged models via homogenization methods is a key investigation area.



Prof. Dr.-Ing. Lucio Colombi Ciacchi

MAPEX speaker
TAB
Am Fallturm 1
28359 Bremen
☎ +49 (0)421 218 - 64570
✉ colombi@hmi.uni-bremen.de
www.hmi.uni-bremen.de

Affiliations

- Faculty of Production Engineering
- Chair: Hybrid Materials Interfaces (HMI)
- Bremen Center for Computational Materials Science (BCCMS)
- Center for Environmental Research and Sustainable Technology (UFT)

Research Landscape

Hybrid Materials, Nanomaterials,
Materials Modelling

Research Focus: The focus of HMI group research lies on the atomic-level studies of interfaces between technological materials and biological macromolecules, with applications in the fields of biomedical implants, biosensors, pharmaceutical packaging, biocompatible adhesives, and many others. The activities of HMI comprise both experimental research into biomolecular adhesion and advanced theoretical modelling from the quantum to the classical level of precision.



Dr.-Ing. Nils Ellendt

IWT
Badgasteiner Str. 3
28359 Bremen
☎ +49 (0)421 218 - 64519
✉ ellendt@iwt.uni-bremen.de
www.iwt-bremen.de

Affiliations

- Faculty of Production Engineering
- Foundation Institute of Materials Science (IWT)
- Coordinator SFB 1232

Research Landscape

Process Engineering, Process Modelling,
Metals

Research Focus: Molten metal single droplet processes, synthesis of defined microstructural states, modelling of solidification processes, droplet based and conventional 3D printing, high-throughput materials discovery.



Prof. Dr. Reinhard X. Fischer

GEO
Klagenfurter Straße
28359 Bremen
☎ +49 (0)421 218 - 65160
✉ rfischer@uni-bremen.de
www.geo.uni-bremen.de/kristall/

Affiliations

- Faculty of Geosciences
- Chair: Crystallography

Research Landscape

Nanomaterials, Porous Materials, Materials
Synthesis, Materials Characterization

Research Focus: Our research area covers the wide range from ocean sediment research to the systematics of crystal structures, crystal optics, crystal growth, and special aspects of the development of high performance materials with a focus on zeolites and mullite-type materials. This work is accompanied by comprehensive software development.



Prof. Dr. Thorsten M. Gesing

NW2
Leobener Straße
28359 Bremen
☎ +49 (0)421 218 - 63140
✉ gesing@uni-bremen.de
www.ckfs.uni-bremen.de

Affiliations

- Faculty of Biology/Chemistry
- Institute of Inorganic Chemistry and Crystallography
- Chair: Solid State Chemical Crystallography

Research Landscape

Nanomaterials, Porous Materials, Materials Synthesis, Material Characterization

Research Focus: Our group is interested in temperature-dependent structure property relations of oxides, especially of compounds with activity lone electron pairs or small framework structures. Structural phase transitions, template-framework interaction, separation of thermal displacement and structural distortion or thermochromic behavior are as well of interest as photonic and (photo-)catalytic effects. Additionally we are dealing with the modeling of thermal expansion behavior and the corresponding model development on one hand and structure refinements and spectroscopic characterization from nano- to single crystals on the other hand.



Prof. Dr.-Ing. Carsten Heinzel

IWT
Badgasteiner Str. 3
28359 Bremen
☎ +49 (0)421 218 - 51110
✉ heinzel@iwt-bremen.de
www.iwt-bremen.de

Affiliations

- Faculty of Production Engineering
- Vice chair: Manufacturing Technology and LFM
- Foundation Institute of Materials Science (IWT)
- Laboratory for Precision Machining (LFM)

Research Landscape

Manufacturing Engineering, Metals

Research Focus: The key areas of investigation are hard and fine machining (cutting & grinding), modeling and simulation of manufacturing processes, prevention of material damage during metal-cutting, distortion engineering during cutting and forming, strain hardening by grinding and deep rolling, as well as sensor integration for grinding tools with a special focus on the complex interaction of manufacturing process and material.



Dr. Stephen Kroll

IW3
Am Biologischen Garten 2
28359 Bremen
☎ +49 (0)421 218 - 64933
✉ skroll@uni-bremen.de
www.ceramics.uni-bremen.de

Affiliations

- Faculty of Production Engineering
- Advanced Ceramics Group

Research Landscape

Porous Materials, Materials Engineering, Materials Characterization

Research Focus: Within the Advanced Ceramics Group the key areas are processing and characterization of functionalized porous ceramics for environmental, biotechnological and energy applications. Beside the controlled adjustment of pore sizes from nm to mm and the tailoring of porosities especially chemical functionalization approaches are used to alter the ceramic surface properties. Current research projects deal with functionalized ceramic membranes for bacteria and virus filtration, ceramic filters/adsorbents for gas separation and ceramic foams used as substrates for heterogeneous catalytic degradation of drug residues.



Prof. Walter Lang

NW 1
Otto-Hahn-Allee 1
28359 Bremen
☎ +49 (0)421 218 - 62602
✉ wlang@imsas.uni-bremen.de
www.imsas.uni-bremen.de

Affiliations

- Faculty of Physics/Electrical Engineering
- Chair: Sensors, Sensorintegration, Neuroimplants and Sensornetworks
- Institute for Microsensors, -Actuators and -Systems (IMSAS)

Research Landscape

System Integration

Research Focus: Our group investigates sensors on solid and flexible substrates. One goal is to integrate the sensor into materials in such a way that macroscopic properties, like for example the material stability, are not influenced. To reach this aim, smaller sensor elements and new material embedding techniques are necessary. Current projects cover the following material systems: metals (aluminum, steel), elastomers (sensors in gaskets) and fiber compound materials.



Prof. Dr.-Ing. Lutz Mädler

IWT
Badgasteiner Str. 3
28359 Bremen
☎ +49 421 218 51200
✉ lmaedler@iwt-bremen.de
www.iwt-bremen.de

Affiliations

- Faculty of Production Engineering
- Chair: Particle and Process Technology
- Foundation Institute of Materials Science (IWT) director of Process & Chemical Engineering Division
- Speaker SFB 1232

Research Landscape

Nanomaterials, Process Engineering, Material Synthesis

Research Focus: Spray processing for particulate materials and functional surfaces, particle science and engineering, particulate systems, reactive and non-reactive spray systems, aerosol manufacturing of materials, nanoparticle technology, air pollution, environmental health ("nanotox").



Prof. Dr.-Ing. Hans-Werner Zoch

IWT
Badgasteiner Str. 3
28359 Bremen
☎ +49 421 218 51301
✉ zoch@iwt-bremen.de
www.iwt-bremen.de

Affiliations

- Faculty of Production Engineering
- Chair: Materials Science
- Foundation Institute of Materials Science (IWT) Managing Director and Director of Materials Science Division

Research Landscape

Metals, Materials Engineering, Materials Characterization

Research Focus: Fundamental and application oriented research on heat treatment of metals, distortion engineering, surface technologies, characterization of microstructures and residual stresses, static and dynamic mechanical properties, optimization of material properties, lightweight materials, mechanical and corrosion testing, modelling & simulation, failure analysis.
