



Silesian  
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RESEARCH  
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Ministry of Science  
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Biofabrication  
and bio-instructive  
materials

# Where chemistry, physics and biology meet: new insights into biomedical research



**Keynote speaker**  
**Michael Gelinsky**

Michael Gelinsky is professor and head of the Centre for Translational Bone, Joint and Soft Tissue Research at the University Hospital and Faculty of Medicine of Dresden University of Technology, Germany. He is a chemist by training and expert in biomaterials, tissue engineering and 3D printing/bioprinting. In 2020 he became "Fellow Biomaterials Science and Engineering", from 2021 until 2025 he served as the president of the German Society for Biomaterials and was admitted as Honorary Fellow by the Society for Biomaterials and Artificial Organs India in 2024. Since beginning of this year he received the honor of a Distinguished Professor of Tohoku University in Sendai, Japan as a second affiliation.

Anja Lode, is a biologist and works at the Centre for Translational Bone, Joint and Soft Tissue Research (TFO), Faculty of Medicine of TU Dresden. She studied at the University of Potsdam and earned her PhD degree in genetics at TU Dresden. Since 2002, she is working in the field of biomaterials and Tissue Engineering, first at the Institute of Materials Science at TU Dresden and since 2011, at the TFO. She is head of the "Bioprinting" group at the TFO and has a long-standing expertise in the characterization of cell-material interactions.



**Invited speaker**  
**Anja Lode**

Organized by Biofabrication and bio-instructive material (BBIM) group of Gosia Włodarczyk-Biegun  
Organizing committee: Monika Jarosz, Hatice Ercan Polat, Anna Byczek-Wyrostek

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Seminar details:

**16** | **New**  
**06** | **Technology**  
**26** | **Centre**  
| **Aula A**

12.00-3.00 pm

# PROGRAMME

12.00-1.00 pm

**Michael Gelinsky**

Combining materials, technologies and cell types for complex tissue models

*"Mammalian tissues in most cases contain several cell types and are organised in a hierarchical manner on different length scales. Therefore it is difficult, if not impossible to mimic such complex structures by using just one material, one type of cell or scaffold. Additive Manufacturing (AM), however, offers opportunities to build up artificial tissues using several cell types in combination with optimized biomaterials to do so. In addition, by combining different AM technologies hierarchically structured architectures can be fabricated. Our lab has worked on such combinations of cell types, biomaterials and AM technologies like extrusion printing and bioprinting and Melt Electrowriting (MEW) for the development of bone, cartilage, osteochondral and liver tissue models, beside others."*

1.00-1.12 pm

**Weronika Bagrowska**

Drug design - searching for AChE inhibitors

1.12-1.24 pm

**Hatice Ercan Polat**

Engineering dynamic chitosan inks through Fe<sup>3+</sup>- catechol coordination chemistry

1.24-1.50 pm

**Coffee break**

1.50- 2.10 pm

**Anja Lode**

Calcium phosphate cements: Development steps on the way to patient-specific implants that stimulate bone regeneration

*"Calcium phosphate cements are promising bone substitute materials which are bioresorbable and osteoconductive. Based on a formulation with alpha-tricalcium phosphate as main component of the precursor, we have developed a material platform that enables the production of patient-specific implants via 3D printing, can release osteostimulating ions, allows for the adjustment of the degradation kinetics, and enables the local release of therapeutic substances and growth factors according to the specific need of a patient."*

2.10-2.22 pm

**Mahboubeh Kavooosi**

Establishing an In Vitro Model to Investigate the Role of Autophagy in Fibroblast Phenotypic Fate During Wound Healing and Fibrosis

2.22-2.34 pm

**Alicja Kazek-Kesik**

Bone implant surface modification: challenges and future perspectives

2.34-2.46 pm

**Sajida Maryam**

Biopolymers as Smart Drug Carriers: Targeted approach against cancer

2.46-2.58 pm

**Grzegorz Duleba**

From Wood to Bone: Mechanical and Structural Evaluation of Biomimetic Carbon Scaffolds for Bone Tissue Engineering