



2. Workshop Projekthaus NanoBioMater

Datum: 08. Oktober 2014
Uhrzeit: 14:00 – 16:30 Uhr
Raum: Raum 6AB am Fraunhofer IGB, Nobelstr. 12, 70569 Stuttgart – B-Gebäude 6.OG
Agenda:

2. Workshop Projekthaus NanoBioMater

Sprecher: Prof. Dr. Sabine Laschat, Prof. Dr. Thomas Hirth, **Koordinatoren:** Prof. Dr. Christina Wege, Prof. Dr. Günter Tovar,
Leitungsgremium: Prof. Dr. Joachim Bill, Prof. Dr. Franz Brümmer, Prof. Dr. Holger Jeske, Prof. Dr. Sabine Ludwigs, Prof. Dr. Cosima
 Stubenrauch **Teamleiter, wissenschaftliche Mitarbeiter, Advisory Board:** s.u.

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| 14:00 – 14:05 Uhr | Begrüßung
Prof. Dr. Christina Wege und Prof. Dr. Günter Tovar
Koordinatoren des Projekthauses NanoBioMater |
| 14:05 – 14:15 Uhr | Perspektiven für einen größeren Forschungsverbund
Prof. Dr. Sabine Laschat und Prof. Dr. Thomas Hirth
Sprecher des Projekthauses NanoBioMater |
| 14:15 – 14:35 Uhr | Das Projekthaus NanoBioMater
Neue Forschungsformen für neue Materialien in Stuttgart
Prof. Dr. Christina Wege und Prof. Dr. Günter Tovar
Koordinatoren des Projekthauses NanoBioMater |
| 14:35 – 15:05 Uhr | Hydrogele, Tabakmosaikviren und Biomineralisation
Eine aussichtsreiche Kombination: multifunktionell, anpassbar und vielseitig nutzbar
Dr. Sabine Eiben, Dr. Fania Geiger, Dr. Dirk Rothenstein, Dr. Alexander Southan
Teamleiter des Projekthauses NanoBioMater |
| 15:05 – 15:55 Uhr | Scientific Exchange within the Projekthaus NanoBioMater |
| 15:05 – 15:20 Uhr | Biopolymer-based bioinks for inkjet bioprinting technology
Dr. Eva Hoch (Chemische Grenzflächenverfahrenstechnik, IGVP) |
| 15:20 – 15:25 Uhr | Tailoring linker molecules for functional hydrogels
Dipl.-Chem. Julia Kupka (Molecular bionics, IOC) |
| 15:25 – 15:30 Uhr | Virus-derived nucleoprotein domains as building blocks for porous bio-functional materials
M. Sc. Nana Wenz (Molekularbiologie und Virologie der Pflanzen, IBBS) |
| 15:30 – 15:45 Uhr | In vitro biomineralization by sea urchin embryonic primary mesenchyme cells
Dipl.-Biol. (t.o.) Maxi Kanold (Zoologie, IBBS) |
| 15:45 – 15:50 Uhr | Superstructures of cobalt (II,III) oxide formed by Co²⁺-mediated association of tobacco mosaic viruses
Dr. Anna Schenk (Funktionspolymere - IPOC) |
| 15:50 – 15:55 Uhr | Applying bioprinting techniques for the generation of vascularized bone tissue equivalents
M. Sc. Annika Wenz (Medizinische Grenzflächenverfahrenstechnik, IGVP) |
| 15:55 – 16:00 Uhr | Closing of the Workshop
Prof. Dr. Sabine Laschat und Prof. Dr. Thomas Hirth
Sprecher des Projekthauses NanoBioMater |
| 16:00 – 16:30 Uhr | Forum mit Poster und Ausstellung |



Kurzinformationen zum Inhalt der Vorträge - 2. Workshop Projekthaus NanoBioMater mit Advisory Board Treffen

Biopolymer-based bioinks for inkjet bioprinting technology

Biopolymers from the native extracellular matrix are chemically modified for the preparation of inkjet printable, cytocompatible and photo-crosslinkable inks (bioinks). These bioinks can be crosslinked into hydrogels with tissue-like properties by UV irradiation in the presence of an UV-sensitive photoinitiator and may be used for the generation of three-dimensional, artificial tissue, e.g. articular cartilage, by inkjet bioprinting.

Dr. Eva Hoch

Chemische Grenzflächenverfahrenstechnik
IGVP Institut für Grenzflächenverfahrenstechnik und Plasmatechnologie

Tailoring linker molecules for functional hydrogels

Organic cross linkers are synthesized which can be easily connected to both natural as well as synthetic polymers towards biocompatible hydrogels mimicking connective tissue.

Dipl.-Chem. Julia Kupka

Molekular Bionics
IOC Institut für Organische Chemie

Virus-derived nucleoprotein domains as building blocks for porous bio-functional materials

Tobacco mosaic virus (TMV) derivatives offer promising perspectives as biotemplate building blocks for nanotechnological applications. Using branched DNA-hybrids as linker molecules, we aim to assemble functionalised TMV particles into nucleic acid lattices with precise control over their spatial arrangement, to form a novel type of porous bio-functional material.

M. Sc. Nana Wenz

Molekularbiologie und Virologie der Pflanzen
IBBS Institut für Biomaterialien und biomolekulare Systeme

In vitro biomineralization by sea urchin embryonic primary mesenchyme cells

Sea urchins produce a mineralized skeleton made of calcite during embryonic development. The cells dedicated to mineralization of the embryonic skeleton are called primary mesenchyme cells (PMCs). These cells can be isolated for in vitro cultivation and biomineral formation. Thereby, they offer the opportunity to produce 2D- and 3D-calcite structures at ambient conditions within suitable matrix surfaces.

Dipl.-Biol. (t.o.) Maxi Kanold

Zoologie
IBBS Institut für Biomaterialien und biomolekulare Systeme

Superstructures of cobalt (II,III) oxide formed by Co²⁺-mediated association of tobacco mosaic viruses

We here demonstrate that μm -sized tubular superstructures of cobalt carbonate hydroxide, can be prepared by mineralization of ordered aggregates of tobacco mosaic viruses (TMV) cross-linked by Co(II)-ions. Thermal conversion of the thus obtained mineral rods leads to the formation of cobalt(II,III) oxide (Co_3O_4), a highly promising material for various technological applications, while the morphology of the initial metal-virus complexes is retained.

Dr. Anna Schenk

Funktionspolymere
IPOC Institut für Polymerchemie

Applying bioprinting techniques for the generation of vascularized bone tissue equivalents

Aim of the work is the development of hydrogel formulations and bioprinting strategies for the generation of structures, which guide cells into the formation of vasculature and bone tissue.

M. Sc. Annika Wenz

Medizinische Grenzflächenverfahrenstechnik
IGVP Institut für Grenzflächenverfahrenstechnik und Plasmatechnologie