

Schedule for the Nachwuchsakademie Medizintechnik 2011

“Learn from living material: Develop technical materials for tissue regeneration and medical implants”

Lectures / discussion are black, complementary scientific program is green, cultural and social program is orange

Monday	22 nd of August 2011	From clinics to basic research: Interaction of cells with their environment
09:00	Opening by Georg Duda, Peter Fratzl and Andreas Lendlein	
09:15 – 09:30	Introduction: Clinical need for innovations in Biomedical Engineering (Prof. Norbert P. Haas, Charité - Universitätsmedizin Berlin)	
09:40 – 10:10	Biomaterials in orthopedics: state of the art, problems and challenges for new materials (N.N.)	
10:20 – 10:50	Challenges from endogenous bone regeneration (Prof. Georg Duda, Charité - Universitätsmedizin Berlin)	
11:00 – 11:30	Structure function and gene regulation in tissue regeneration (Prof. Klaus von der Mark, Universität Erlangen)	
11:40 – 12:10	Matrix remodelling (Prof. Keita Ito, Eindhoven University of Technology)	
13:30 – 15:30	Meetings with lecturers on individual basis	
16:00 – 17:00	Keynote Lecture: Controlling stem cell differentiation with materials (Prof. Dennis Discher, University of Pennsylvania)	
Tuesday	23 rd	Characterization of biological materials
09:00 – 09:30	Methods to characterise biological materials (...) (Dr. Richard Weinkamer, MPI for Colloids and Interfaces)	
09:40 – 10:10	Acoustic Microscopy to study biological materials (Prof. Kay Raum, Charité - Universitätsmedizin Berlin)	
10:20 – 11:00	Hierarchical organisation of tissue (Prof. Peter Fratzl, MPI for Colloids and Interfaces)	
11:10 – 11:40	Innovative approaches meet traditional biomaterials (Prof. Viola Vogel, ETH Zürich)	
12:15 – 15:45	Meetings with lecturers on individual basis at the same time: Lab tour: Charité (JWI, BCRT, CMSC)	
16:00 – 16:40	Design Thinking (Prof. Christoph Meinel, Hasso-Plattner-Institut GmbH)	
17:00 – 18:00	Keynote Lecture: Cell communication using chemical, mechanical and electrical signals (Prof. David Mooney, Harvard School of Applied Sciences and Engineering)	
20:00 – 21:30	Classical Concert	
Wednesday	24 th	Development of (bio-)materials
09:00 – 09:40	Optimisation of structure and interfaces (Prof. Carsten Werner, Leibniz-Institut für Polymerforschung)	
09:50 – 10:30	Materials in nano-medicine (Prof. Rainer Haag, Freie Universität Berlin)	
10:40 – 11:20	Functionality and drug release (Prof. David W. Grainger, University of Utah)	
11:30 – 12:10	Multifunctional materials (Prof. Andreas Lendlein, HZG – Centre for Biomaterial Development)	

- 13:30 – 16:30 **Meetings with lecturers on individual basis**
at the same time: **Lab tour: MPI for Colloids and Interfaces**
- 17:00 – 18:00 Keynote Lecture: Advanced material strategies for tissue engineering scaffolds
(Prof. George C. Engelmayr, Penn State University)
- 19:00 – 22:00 **Tour at the "Museumsinsel"**

Thursday 25th (Bio-)Materials: towards the clinics

- 09:00 – 09:40 Bioengineered solutions from an industrial perspective
(Prof. Lorenz Meinel, Universität Würzburg)
- 09:50 – 10:30 Controlled drug delivery for regenerative medicine
(Prof. Bruno Gander, ETH Zürich)
- 10:40 – 11:10 Bioactive Scaffolds and Nanomaterials for tissue regeneration
(Prof. Aldo Boccaccini, Universität Erlangen-Nürnberg)
- 11:20 – 12:00 Biomaterial testing in vitro and in vivo
(N.N.)
- 12:15 – 13:45 **Meetings with lecturers on individual basis**
- 14:00 – 14:50 **Workshop 1: research networks, time management and human resources management**
(Prof. Duda / Prof. Fratzl / Prof. Lendlein + PostDoc)
- 16:00 – 19:00 **Boat Trip on the Spree**

Friday 26th (Bio-)Materials: meeting the patient

- 09:00 – 09:30 Biomaterial resorption, integration of non-resorbable material
(Prof. Jürgen Groll, Universität Würzburg)
- 09:40 – 10:10 Drug-eluting stents: future perspectives
(Prof. Rainer Wessely, Johanniter-Krankenhaus Duisburg)
- 10:20 – 11:00 *Podium discussion:* Biopharmaceutical development and health economics
(Prof. Jan Pietzsch, Dr. Barbara Pfüller)
- 11:10 – 12:30 Bio-engineered products for clinical applications:
The cardiovascular system
(Prof. Carsten Tschöpe, Charité - Universitätsmedizin Berlin)
The musculoskeletal system
(Prof. Reinhard Schnettler, Universitätsklinikum Gießen und Marburg GmbH)
Cell therapeutic approaches utilizing biomaterials
(N.N.)
- 13:30 – 16:30 **Meetings with lecturers on individual basis**
at the same time: **Lab tour: HZG, Centre for Biomaterial Development**
- 17:00 – 18:00 Keynote Lecture: From Biomedical Engineering ideas to clinical products
(Prof. Frank Fabian Bier, Fraunhofer-Institut für Biomedizinische Technik)

Saturday 27th Discussion of projects outlines / DFG

- 08:00 – 09:00 internal meeting
- 09:00 – 09:20 Physics & Engineering in Biomedicine - Perspectives, Challenges, Careers
(Prof. Fridtjof Nüsslin, Klinikum rechts der Isar der Technischen Universität München)
- 09:30 – 12:00 **Discussion of projects outlines group I**
- 12:15 – 14:45 **Discussion of projects outlines group II**
- 15:30 – 17:00 **Workshop 2: third-party funds acquisition and grant application**
(Dr. Christian Renner, Dr.-Ing. Burkhard Jahnen, DFG)
- 17:00 End of event