

Programme

4th Euro

BioMAT 2017

European Symposium and Exhibition
on Biomaterials and Related Areas

09. - 10. May 2017
Weimar, Germany

<https://biomat2017.dgm.de>

DGM

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Welcome Note

Dear participants, colleagues and partners of the **BioMAT 2017**,

Based on the huge success of the first three **Euro BioMAT** Symposia in Jena in 2011 and in Weimar in 2013 and 2015 this international conference will be held every two years in the Jena-Weimar Region.

The symposium **Euro BioMAT 2017** addresses the growing interest of science and industry in the different aspects of the creation, characterization, testing and application of biomaterials and closely related areas. The motivation is not only the recent scientific progress and new challenges of this exciting, strongly interdisciplinary field of science and engineering. Materials scientists, physicists, chemists, biologists in industrial R&D as well as medical professionals are increasingly facing situations, where materials are confronted with high performance requirements and a challenging biological environment at the same time.

Much of the growth in the area of biomaterials emerged in the USA and Asia over the last years but Europe is gaining ground with a fast and steady growth in this field. The German Materials Society (Deutsche Gesellschaft für Materialkunde e.V. - DGM) and its panel of experts in biomaterials address these developments with the **Euro BioMAT 2017** in Weimar. **Euro BioMAT 2017** will present and discuss the current state of progress and novel trends in the development, characterization, application, testing and modelling of biomaterials in basic science and industry. In addition, this symposium will bring together experts in closely related areas, such as biomimetics, biomineralization and biopolymers.

The organizers at the DGM feel a need to serve the European biomaterials community beyond the other European and world biomaterials congresses with a compact two-day meeting which brings together fascinating science and stimulating people in a delightful setting in historic Weimar in the very heart of Europe.

The programme of the **Euro BioMAT 2017** will comprise several invited plenary lectures as well as oral and poster presentations.

We look forward to seeing you in Weimar 2017!



Klaus D. Jandt

Chairman
Friedrich Schiller University Jena, Germany



Thomas F. Keller

Vice Chairman
DESY Hamburg, Germany

General Information

Date

09.-10. May 2017

Conference Chairs

Klaus D. Jandt
Chairman
Friedrich Schiller University Jena,
Germany

Thomas F. Keller
Vice Chairman
DESY Hamburg, Germany

Congress Office

INVENTUM GmbH
Alexia Ploetz
Marie-Curie-Straße 11-13
D-53757 Sankt Augustin,
Germany
biomat@dgm.de

Conference Website

<https://biomat2017.dgm.de>

Conference Language

The official congress
language will be English.

Conference Venue

Park Inn by Radisson Weimar
Hotel
Kastanienallee 1
D-99428 Weimar, Germany
<http://www.parkinn.de/hotel-weimar>

Internet Access

Internet vouchers for
conference visitors can be
purchased at the hotel reception of the Park Inn by Radisson Weimar Hotel.
There is a free internet access for the hotel guests.

Conference Fees

Young Researchers up to
30 years

DGM members	230 EUR
DGM basic members	270 EUR
Non-members	300 EUR

Expert Researchers 31-40 years

DGM members	460 EUR
DGM basic members	490 EUR
Non-members	530 EUR

Professionals University

DGM members	560 EUR
DGM basic members	590 EUR
Non-members	630 EUR

Industry

DGM members	680 EUR
DGM basic members	730 EUR
Non-members	780 EUR

Lunch

Lunch is included in the conference fees and will be served on Tuesday and Wednesday in the hotel restaurant.

Coffee Breaks

Coffee and refreshments will be served during the official breaks.

Oral Poster Session

The oral poster session will be held on Tuesday
09. May 2017 starting at 18:00 in the lecture Room Goethe.

Poster Evening

Poster authors will have the opportunity to discuss their subject with delegates and answer questions in front of their poster after the oral poster session.
Snacks and beverages will be offered.

Poster Award

A prize for the best poster will be awarded by a jury. The winner will be announced and awarded on Wednesday, 10. May 2017 at 09:00 a.m.

Poster Prize Sponsor:



List of Participants

An updated List of Participants is available on our homepage:
<http://www.dgm.de/biomat>

Abstracts

All abstracts are on display on the conference website and will remain online after the conference.

Furthermore accepted abstracts will be published in the open access journal Medical Materials and Technologies.

Location of the Park Inn by Radisson Hotel Weimar

The hotel is only a few kilometres from Weimar city centre. You can reach Weimar City and its numerous sights in just 10 minutes by car and 20 minutes by public transport. Bus number 6 stops just 20 metres from the hotel. The hotel's proximity to the A4 motorway is ideal for those arriving by car.

Directions to the Park Inn by Radisson Hotel Weimar

Arrival to the hotel by car:
A4 motorway: Take the Weimar exit (junction 49); follow the B85 towards Rudolstadt. Then follow the Hotelroute Süd (South hotel route). At the roundabout in Legefeld, take the first exit. The Park Inn by Radisson Hotel Weimar is situated on the left after approx. 200m.

Arrival to the hotel by public Transport from the railway station:

Plenty of taxis are available at the railway station. The journey from the station to the hotel costs around 20.- Euro. There is also the option of taking the city bus number 6 towards Legefeld. The transfer takes around 20-25 minutes. Current bus timetables can be requested when making your reservation.

Distances from the Park Inn by Radisson Hotel Weimar

Goethe's Home:	06 km
Bauhaus Museum:	10 km
City Palace and Marstall (stables):	10 km
Buchenwald Monument:	16 km
Park at the River Ilm:	05 km
Deutsches Nationaltheater (German National Theatre):	07 km
Anna Amalia Library:	07 km
Park caves:	06 km
Jakobskirche:	08 km
Herderkirche:	7.5 km
Belvedere Palace:	06 km
Tiefurt Mansion:	10 km
Erfurt and Jena:	30 km

Programme Committee



Liga Berzina-Cimdina
Riga Technical University,
Lithuania



Aldo R. Boccaccini
University of Erlangen-Nürnberg,
Germany



Gabriela Ciapetti
Rizzoli Orthopaedic Institute,
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Ruhr-University Duisburg-Essen,
Germany



Ehud Gazit
Tel Aviv University,
Israel



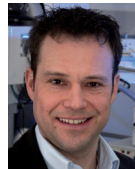
John Hunt
University of Liverpool, UK



Willi Jähnen-Dechent
RWTH Aachen University,
Germany



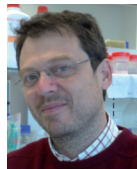
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João F. Mano
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Portugal



Giovanni Marletta
University of Catania, Italy



Werner E.G. Müller
Johannes Gutenberg University
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Kurosch Rezwan
University of Bremen,
Germany



Thomas Scheibel
University of Bayreuth,
Germany



Norman Stark
Straub Medical AG,
Wangs, Switzerland



Bo Su
University of Bristol, UK



David Watts
University of Manchester,
UK



Frank Witte
Charité Berlin,
Germany

Topics

The following subjects will be discussed:

A Structure and properties of biomaterials

- A1 Bio-nano materials
- A2 Bioactive materials, bioglass and calciumphosphates
- A3 Biodegradable materials
- A4 Bioinspired materials / biomimetic materials
- A5 Biological materials and biomineralization
- A6 Computational biomaterials science
- A7 Hydrogels and biobased & synthetic polymers
- A8 Imaging of biomaterials

B Biological response to biomaterials

- B1 Antimicrobial biomaterials & biofilms
- B2 Biocompatibility
- B3 Biointerfaces and microenvironments
- B4 Clinical performance and microenvironments
- B5 Multi-functional biomaterials

C Biomaterials applications

- C1 Current and future challenges for the MedTech industry
- C2 Dental materials
- C3 Drug and gene delivery
- C4 Innovation in fabrication including 3D printing / additive manufacturing / biofabrication of biomaterials
- C5 Responsive and smart biomaterials
- C6 Tissue engineering / regenerative medicine

E Special session SFB TRR 79

Round table discussion

Programme Overview Tuesday

Tuesday			
08:00	Poster Mounting and Registration		
	Room Goethe I		
09:00	Opening Address		
09:15	The EMBO Keynote Lecture		
09:45	Plenary Lecture		
10:15	Coffee Break		
	Room Goethe III	Room Bach	Room Schiller
11:00	B3 Biointerfaces and microenvironments	A2 Bioactive materials, bioglass and calcium-phosphates	C2 Dental materials
13:20	Lunch Break		
	Room Goethe I		
14:30	Plenary Lecture		
15:00	Short Break		
	Room Goethe III	Room Bach	Room Schiller
15:10	B3 Biointerfaces and microenvironments C5 Responsive and smart biomaterials	B1 Antimicrobial biomaterials & biofilms	A3 Biodegradable materials A8 Imaging of biomaterials
17:30	Coffee Break		
	Room Goethe I		
18:00	Oral Poster Session		
	Foyer of the conference hotel		
19:30	Poster Discussion Evening		



Programme Overview Wednesday

Wednesday			
	Room Goethe I		
08:00	Plenary Lecture		
08:30	Plenary Lecture		
09:00	Announcement of the Poster Award Winner		
09:10	Coffee Break		
	Room Goethe III	Room Bach	Room Schiller
09:40	A5 Biological materials and biomineralization	B2 Biocompatibility A4 Bioinspired materials / biomimetic materials	C4 Innovation in fabrication including 3D printing / additive manufacturing / biofabrication of biomaterials
11:00	Coffee Break		
	Room Goethe III	Room Bach	Room Schiller
11:30	C3 Drug and gene delivery	A7 Hydrogels and biobased & synthetic polymers	C6 Tissue engineering / regenerative medicine
13:10	Lunch Break		
	Room Goethe III	Room Bach	Room Schiller
14:20	A1 Bio-nano materials	E Special session SFB TRR 79	Round table discussion
	Room Goethe I		
16:40	Closing Remarks		

Programme Tuesday 08:00 - 09:45

Tuesday

08:00 **Poster Mounting and Registration**

Room Goethe I

09:00 **Opening Address**

K.D. Jandt, Chairman of the conference, Friedrich Schiller University Jena (Germany)

The EMBO Keynote Lecture

Chair K.D. Jandt, Chairman of the conference, Friedrich Schiller University Jena (Germany)

09:15 **From biological self-assembly to novel peptide nanostructures of unique mechanical, optical, piezoelectric and semiconductive properties**

E. Gazit, Tel Aviv University (Israel)



Bio-inspired nanotechnology is a key front in the field of molecular self-assembly of new structures and composite families at the nano-scale. Concept and notions from biological self-assembly could allow the design and fabrication of nanomaterials, while molecular self-assembly paradigm could be applied to biological systems. Our work on the mechanism of aromatic peptide self-assembly, lead to the discovery that the diphenylalanine recognition motif self-assembles into peptide nanotubes with a remarkable persistence length. Other aromatic homodipeptides (including those with non-coded amino acids as DOPA) could self-assemble in nano-spheres, nano-plates, nano-fibrils and hydrogels with nano-scale order. The modification of peptide building blocks with the Fmoc protecting group allows the formation of hydrogels with nano-scale order. We demonstrated that the peptide nanostructures have unique chemical, physical and mechanical properties including ultra-rigidity as aramides, semi-conductive, piezoelectric and non-linear optic properties. We also demonstrated the ability to use these peptide nanostructures as casting mould for the fabrication of metallic nano-wires and coaxial nano-cables. The application of the nanostructures was demonstrated in various fields including electrochemical biosensors, tissue engineering, and molecular imaging. We had developed ways for depositing of the peptide nanostructures and their organization. We had use inkjet technology as well as vapour deposition methods to coat surface and from the peptide "nano-forests". We recently demonstrated that even a single phenylalanine amino-acid can form well-ordered fibrillar assemblies of distinct electron diffraction pattern and toxic properties. The combination of DNA properties and peptide backbone in the form of Peptide Nucleic Acid (PNA) resulted in light emitting assemblies that exhibit both stacking and Watson-Crick base-pairing. We recently extended our studied to single amino acids and metabolites. We established the concept that even these entities can form well-ordered assemblies with amyloid like properties including ultrastructural morphology, toxicity leading to apoptosis, ThT-binding, and Congo-red birefringence.

Programme Tuesday 09:45 - 11:00

Plenary Lecture

09:45

Current trends and future advancement in dental restorative materials

J. Ferracane, Oregon Health & Science University, Portland (USA)



The current state of dental composites presents the practitioner with many material options having a broad range of physical and optical properties, and handling characteristics. The current materials have evolved based on the needs and requests of dental practitioners desiring materials capable of being used in more extensive applications, and with greater ease of use. While there is not one material that is considered ideal, dentists are able to use existing products, alone or in combination, to produce restorations that are of high quality and with excellent longevity. In the past, the introduction of new formulations was predominantly focused on materials with better esthetics, polishability, handling, and wear resistance. More recently commercial materials have been designed with reduced polymerization shrinkage and shrinkage stress, and enhanced depth of cure for use as bulk-fill restoratives. Looking to the future, the next series of developments will likely be to produce direct composite restoratives with self-adhesive qualities, already present in some flowable and cementing materials, and resin restoratives that are more resistant to the degradatory effects of intraoral hydrolysis and attack from salivary and bacterially derived enzymes. Other developments will likely include materials that are bioactive, interacting with the environment by releasing essential ions for remineralization processes, as well as releasing important molecules capable of recruiting cells to specific sites to aid in the healing and repair of lost tooth structure. Materials capable of repair of internal and external defects can also be envisioned. The development of dental resin-based composites continues to represent one of the most exciting areas of dentistry.

10:15

Coffee Break



Programme Tuesday 11:00 - 11:20

	Room Goethe III	Room Bach	Room Schiller
	B3 Biointerfaces and microenvironments	A2 Bioactive materials, bioglass and calcium-phosphates	C2 Dental materials
Chair	T.F. Keller, Deutsches Elektronen-Synchrotron DESY (Germany)	R.W. Kinne, Jena University Hospital (Germany)	J. Ferracane, Oregon Health & Science University, Portland (USA)
11:00	Patterning of versatile nanocomposite biomaterials based on bioinert PEG-Hydrogels and bioactive nanohydroxyapatite and cellular responses to the biointerfaces M.C. Lensen (Sp), Technische Universität Berlin (Germany)	Surface-enriched PTMC scaffolds with hydroxyapatite for bone tissue regeneration O. Guillaume (Sp), M. Alini, D. Eglin, G. Richards, C. Sprecher, S. Zeiter, AO Foundation, Davos (Switzerland); M. Geven, D.W. Grijpma, University of Twente, Enschede (The Netherlands)	A biomimetic approach to ameliorate dental hypersensitivity by amorphous polyphosphate microparticles W. Müller (Sp), X. Wang, University Medical Center of the Johannes Gutenberg University, Mainz (Germany)



Programme Tuesday 11:20 - 11:40

	Room Goethe III	Room Bach	Room Schiller
	B3 Biointerfaces and microenvironments (cont.)	A2 Bioactive materials, bioglass and calcium-phosphates (cont.)	C2 Dental materials (cont.)
11:20	Multifunctional biomaterials for mimicking the bone marrow C. Lee-Thedieck (Sp), R. Gralla-Koser, D. Kratzer, L. Rödling, T. Tischer, A.-L. Winkler, Karlsruhe Institute of Technology (KIT) (Germany)	Novel injectable composites based on gellan gum hydrogel and Zn- and Sr-enriched bioglasses: high-resolution synchrotron X-Ray micro-computer tomography analysis, antibacterial and in vitro testing T. Douglas (Sp), L. Balcaen, G. Brackman, T. Coenye, A. Skirtach, F. Vanhaecke, V. Vanhoorne, C. Vervaet, Ghent University (Belgium); L. Bacakova, J. Liskova, The Czech Academy of Sciences (Czech Republic); T. Baumbach, R. Shkarin, Karlsruhe Institute of Technology (KIT) (Germany); A.R. Boccaccini, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) (Germany); K. Cholewa-Kowalska, M. Dziadek, AGH University of Science and Technology (Poland); S. Gorodzha, R. Surmenev, M. Surmeneva, National Research Tomsk Polytechnic University (Russia); V. Weinhardt, University of Heidelberg (Germany)	Dental hybrid implants: multifunctional role of anatase nano-coatings F. Rupp (Sp), J. Geis-Gerstorfer, L. Scheideler, University Hospital Tuebingen (Germany); Y. Wu, Goethe University Frankfurt a.M. (Germany)

Programme Tuesday 11:40 - 12:20

	Room Goethe III	Room Bach	Room Schiller
	B3 Biointerfaces and microenvironments (cont.)	A2 Bioactive materials, bioglass and calcium-phosphates (cont.)	C2 Dental materials (cont.)
11:40	Glycoconjugation of polycaprolactone (PCL) nanostructured 2D scaffolds R. Guizzardi (Sp), L. Cipolla, M. Lecchi, V. Pastori, University of Milano-Bicocca (Italy); C. Battocchio, V. Secchi, Roma Tre University (Italy)	The old sheep: a simple and appropriate model for senile osteopenia? R.W. Kinne (Sp), S. Bischoff, C. Braun, O. Brinkmann, M. Bungartz, F. Gunnella, I. Hasenbein, V. Horbert, E. Kunisch, A. Sachse, H. Schubert, Jena University Hospital (Germany); J. Bossert, K.D. Jandt, S. Maenz, Friedrich Schiller University Jena (Germany)	Influence of branched poly(acrylic acid) on setting behaviour and mechanical properties of dental glass ionomer cements R. Wetzel (Sp), P. Biehl, D.S. Brauer, O. Eckardt, F.H. Schacher, Friedrich Schiller University Jena (Germany); E. de Barra, University of Limerick (Ireland)
12:00	Inspired by the sugar code: driving cell fate by neoglycosylated collagen-based biomaterials L. Cipolla (Sp), University of Milano-Bicocca (Italy)	Enhanced bone formation in sheep vertebral bodies after minimally-invasive treatment with a novel, PLGA-fiber reinforced brushite cement S. Maenz (Sp), J. Bossert, K.D. Jandt, Friedrich Schiller University Jena (Germany); S. Bischoff, O. Brinkmann, M. Bungartz, F. Gunnella, V. Horbert, R.W. Kinne, E. Kunisch, A. Sachse, H. Schubert, L. Xin, Jena University Hospital (Germany); J. Günster, B. Illerhaus, BAM Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin (Germany)	Whitish PEO-surfaces for implantological applications in dentistry: an in vitro-approach O. Jung (Sp), P. Hartjen, M. Heiland, R. Smeets, University Medical Center Hamburg-Eppendorf (Germany); M. Klein, F. Walther, TU Dortmund University (Germany); A. Kopp, D. Porchetta, Meotec GmbH & Co. KG (Germany)

Programme Tuesday 12:20 - 13:00

	Room Goethe III	Room Bach	Room Schiller
	B3 Biointerfaces and microenvironments (cont.)	A2 Bioactive materials, bioglass and calcium-phosphates (cont.)	C2 Dental materials (cont.)
12:20	Influence of nano-ripple patterns on stem cell adhesion and AFM manipulation experiments on glasses E. Gnecco (Sp), Friedrich Schiller University Jena (Germany)	GDF5 significantly augments the bone formation induced by an injectable, PLGA-fiber reinforced, brushite-forming cement in a sheep defect model of lumbar osteopenia R.W. Kinne (Sp), S. Bischoff, J. Borowski, O. Brinkmann, M. Bungartz, F. Gunnella, V. Horbert, E. Kunisch, A. Sachse, H. Schubert, L. Xin, Jena University Hospital (Germany); J. Bossert, K.D. Jandt, S. Maenz, Friedrich Schiller University Jena (Germany); J. Günster, B. Illerhaus, BAM Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin (Germany); J. Mika, University Hospital Giessen-Marburg, Campus Giessen (Germany); F. Plöger, BIOPHARM GmbH, Heidelberg (Germany)	Design and synthesis of high strength leucite glass-ceramics with controlled microstructures X. Chen (Sp), The University of Manchester (United Kingdom); M. Cattell, R. Hill, Queen Mary University of London (United Kingdom)
12:40	Functionalized porous ceramic microbeads as carriers in enzymatic tandem systems G. Hollermann (Sp), R. Dhekane, S. Kroll, K. Rezwan, University of Bremen (Germany)	Multifunctional nano- and macroporous bioglass-composites for bone replacement N. Ehlert (Sp), K. Besecke, C. Blume, R. Hinterding, A. Lavrentieva, Leibniz Universität Hannover (Germany); L. Burmeister, A. Hoffmann, J. Schaeske, M. Stiesch, A. Winkel, Hannover Medical School (Germany); H. Menzel, Technische Universität Braunschweig (Germany)	Physico-mechanical properties of dental hybrid ceramics N. Alharbi (Sp), X. Chen, J. Satterthwaite, N. Silikas, The University of Manchester (United Kingdom)

Programme Tuesday 13:00 - 15:10

	Room Goethe III	Room Bach	Room Schiller
	B3 Biointerfaces and microenvironments (cont.)	A2 Bioactive materials, bioglass and calcium-phosphates (cont.)	C2 Dental materials (cont.)
13:00	Applied studies on micropatterned surface to control the three-dimensional accumulation and lineage commitment of adipose-derived stem cells Y. Furuhashi (Sp), The University of Tokyo (Japan)	Stability of bioactive bone graft substitute exposed to different aging and sterilisation treatments L.-P. Lefebvre (Sp), C. Charbonneau, National Research Council Canada (Canada)	Characterization of multinucleated giant cells (MNGCs) around bone biomaterials by various cell-surface markers in human biopsies H. Zohdi (Sp), D.D. Bosshardt, M. Fujioka-Kobayashi, University of Bern (Switzerland); R.J. Miron, Nova Southeastern University (United States);
13:20	Lunch Break		
	Room Goethe I		
	Plenary Lecture		
Chair	K.D. Jandt, Chairman of the conference, Friedrich Schiller University Jena (Germany)		
14:30	Poly(trimethylene carbonate) meniscus implants prepared by stereolithography: challenges in stereolithography D.W. Grijpma, University of Twente (The Netherlands)		
	Meniscal injuries occur frequently in young patients as the result of trauma, such as sports injuries. To replace damaged meniscus tissue, resorbable porous implants that allow meniscal tissue ingrowth have been developed. However, an optimal scaffold is not yet available. We aimed to build a defined, biodegradable and biocompatible functional meniscus implant using stereolithography (SLA). SLA is a 3D-printing technique that allows the building of designed 3D structures using photo-crosslinkable macromers. We designed and built a porous implant using CT imaging data of a goat meniscus. The photo-reactive resin we used is based on poly(trimethylene carbonate) (PTMC) macromers with a relatively high molecular weight, which crosslink into biodegradable, flexible and rubber-like materials with excellent mechanical properties. The difficulties in building designed structures with digital light processing stereolithography and the ways of optimizing the resin compositions are described in detail.		
15:00	Short Break		

Programme Tuesday 15:10 - 15:50

	Room Goethe III	Room Bach	Room Schiller
	B3 Biointerfaces and microenvironments C5 Responsive and smart biomaterials	B1 Antimicrobial biomaterials & biofilms	A3 Biodegradable materials A8 Imaging of biomaterials
Chair	M. Lensen, Technische Universität Berlin (Germany)	J. Jenkins, University of Bristol (United Kingdom)	R. Willumeit-Römer, Helmholtz-Zentrum Geesthacht (Germany)
15:10	Recent trends in synchrotron-based X-ray diffraction and imaging in the biomedical field T.F. Keller (Sp), Deutsches Elektronen-Synchrotron DESY and Institute of Nanostructure and Solid State Physics (INF), University of Hamburg (Germany)	Reduced adhesion forces on nanoparticle-structured surfaces C. Dewald (Sp), J. Bossert, K.D. Jandt, C. Lüdecke, Friedrich Schiller University Jena (Germany); M. Roth, Leibniz Institute for Natural Product Research and Infection Biology, Hans Knöll Institute (HKI) (Germany)	Biodegradable magnesium implants and their influence on cell metabolism R. Willumeit-Römer (Sp), M. Costantino, B. Luthringer, L. Wu, Helmholtz-Zentrum Geesthacht (Germany)
15:30	Attempted phagocytosis of surface features and the resulting osteoblast signaling B. Nebe (Sp), C. Mörke, Rostock University Medical Center (Germany)	A Novel bactericidal titanium surface to combat biofilm formation on orthopaedic implants J. Jenkins (Sp), University of Bristol (United Kingdom)	Influences of in vitro conditions on magnesium biomaterials degradation J. González (Sp), F. Feyerabend, N. Ahmad Agha, R. Willumeit-Römer, Helmholtz-Zentrum Geesthacht (Germany)



Programme Tuesday 15:50 - 16:10

15:50

Room Goethe III	Room Bach	Room Schiller
B3 Biointerfaces and microenvironments (cont.)	B1 Antimicrobial biomaterials & biofilms (cont.)	A3 Biodegradable materials (cont.)
Micropatterned polymer scaffolds for guiding 3-dimensional cultivation of cells J. Borowiec (Sp), K. Friedel, J. Hampl, S. Häfner, A. Schober, Technische Universität Ilmenau (Germany)	Antimicrobial surfaces based on functionalised nanospikes M. Eales (Sp), A. Nobbs, B. Su, University of Bristol (United Kingdom)	Biocompatibility of ultra-fine-grained magnesium alloy WE43 processed by equal channel angular pressing N. Martynenko (Sp), M. Gorshenkov, National University of Science and Technology MISiS (Russia); N. Anisimova, M. Kiselevsky, N.N. Blokhin Russian Cancer Research Center, Moscow (Russia); N. Biribilis, Monash University, Melbourne (Australia); S. Dobatkin, E. Lukyanova, National University of Science and Technology „MISIS“/Russian Academy of Sciences, Moscow (Russia); Y. Estrin, National University of Science and Technology „MISIS“, Moscow, Russia/Monash University, Melbourne, (Australia); G. Raab, Ufa State Aviation Technical University, Ufa (Russia)



Programme Tuesday 16:10 - 16:50

Chair

16:10

16:30

Room Goethe III	Room Bach	Room Schiller
C5 Responsive and smart biomaterials	B1 Antimicrobial biomaterials & biofilms (cont.)	A3 Biodegradable materials (cont.)
I. Firkowska-Boden, Friedrich Schiller University Jena (Germany)		
Evaluation of an injectable thermoresponsive hyaluronan hydrogel in a rabbit osteochondral defect model D. Eglin (Sp), M. Alini, I. Dresing, D. Nehrbass, C.M. Sprecher, S. Zeiter, AO Research Institute Davos (Switzerland); M. D'Este, AO Foundation (Switzerland); S. Milz, Ludwig-Maximilians-Universität München (Germany)	Silver nanoparticles stabilized with 3-mercaptopropylsulfonate and 1-thiogluconate mixed thiols for antibacterial applications L. Carlini (Sp), C. Battocchio, C. Meneghini, F. Porcaro, A. Ugolini, D. Visaggio, P. Visca, University Roma Tre (Italy); I. Fratoddi, I. Venditti, Università degli Studi di Roma „La Sapienza“ (Italy)	Novel biodegradable Fe-Mn-C(-B/S) alloys with superior mechanical and corrosion properties J. Hufenbach (Sp), A. Gebert, F. Kochta, U. Kühn, A. Voß, H. Wendrock, Leibniz Institute for Solid State and Materials Research Dresden (Germany); M. Gelinsky, A. Lode, Centre for Translational Bone, Joint and Soft Tissue Research, University Hospital Carl Gustav Carus and Medical Faculty Technische Universität Dresden (Germany)
Mechanical spectroscopy of retina explants at the protein level employing nanostructured scaffolds M. Zink (Sp), S.G. Mayr, Leipzig University (Germany)	Metallic surfaces by ultrashort pulsed laser structuring D. Müller (Sp), Steinbeis-Forschungszentrum (Germany); C. Gachot, Technische Universität Wien (Austria); P. Grützmaier, F. Mücklich, Saarland University (Germany)	Synthesis and performance of biodegradable PHBV-based polyurethane for potential vascular graft applications K. Qiao, Y. Zheng (Sp), University of Science and Technology Beijing (China); C. Wang, Y. Wang, University of Science and Technology Beijing (China)

Programme Tuesday 16:50 - 18:00

Chair

16:50

Responsive copolymer-graphene oxide hybrid microspheres with improved drug release kinetic

I. Firkowska-Boden (Sp), K.D. Jandt, Friedrich Schiller University Jena (Germany); M.M.L. Arras, Oak Ridge National Lab (United States); F. Dong, Guizhou University (China)

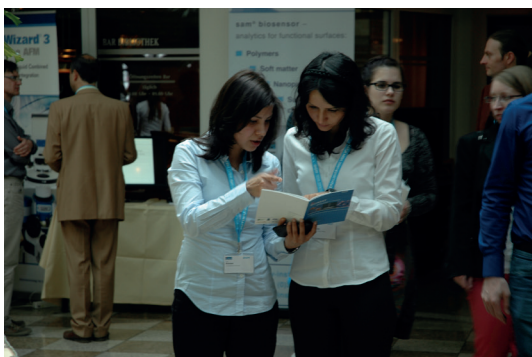
17:10

Stimuli-responsive hydrogel gelatin modified as bio-actuator

S. Riedel (Sp), K. Apel, B. Heyart, S.G. Mayr, Leibniz Institute of Surface Modification (IOM) (Germany)

17:30

Coffee Break



Room Goethe III **C5 Responsive and smart biomaterials (cont.)**

Room Bach **B1 Antimicrobial biomaterials & biofilms (cont.)**

Room Schiller **A8 Imaging of biomaterials** F. Witte, Charité Berlin, Germany

How the surface nano-roughness influences microbial adhesion

C. Helbing (Sp), J. Bossert, K.D. Jandt, C. Lüdecke-Beyer, Friedrich Schiller University Jena (Germany); U. Horn, M. Roth, Leibniz Institute for Natural Product Research and Infection Biology, Hans Knöll Institute (Germany); W. Yu, University of Tübingen (Germany)

A thermo-responsive hyaluronan based hydrogel containing gentamicin in a contaminated in vivo fracture model prevents infection

D. Eglin (Sp), F. Moriarty, G.-J. ter Boo, G. Richards, AO Research Institute Davos (Switzerland); D.W. Grijpma, University of Twente (The Netherlands)

Integration of high-resolution micro-computed tomography in the quality control of 3D-printed scaffolds

V. Stadelmann (Sp), SCANCO Medical AG (Switzerland); D. Eglin, O. Guillaume, G. Richards, AO Research Institute Davos (Switzerland); M. Geven, D.W. Grijpma, University of Twente (The Netherlands)

Comprehensive roughness and wetting analysis of biomaterials

L. Coriand (Sp), A. Duparré, N. Felde, Fraunhofer Institute for Applied Optics and Precision Engineering IOF (Germany)

Programme Oral Poster Session Tuesday 18:00

Room Goethe I

18:00

Oral poster session

Chair

T.F. Keller, Deutsches Elektronen-Synchrotron DESY (Germany)

A1-49

Fibrinogen adsorption and network formation on melt drawn isotactic polybutene-1 thin films

X. Zhang (Sp), C. Helbing, K.D. Jandt, C. Lüdecke-Beyer, Friedrich Schiller University Jena (Germany); M.M.L. Arras, Oak Ridge National Laboratory (United States)

A1-139

Characterization of biomaterials using AFM based fast nanoscale imaging and quantitative nanomechanical techniques

T. Neumann (Sp), H. Haschke, T. Jähnke, S. Kostrowski, T. Müller, C. Petterson, D. Stamov, JPK Instruments AG, Berlin (Germany)

A2-75

Hydrothermal conversion of porous Ca carbonate biominerals into bioactive Ca phosphate materials: towards antibiotic and antiosteoporotic bone graft substitutes

I. Sethmann (Sp), H.-J. Kleebe, C. Luft, F. Pfeifer, S. Völkel, Technische Universität Darmstadt (Germany)

A2-136

Study on the retarding effect of phytic acid on the hydration of a brushite cement

K. Hurler (Sp), F. Götz-Neunhoffer, J. Neubauer, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) (Germany)

A2-162

Synthesis of hollow mesoporous bioactive glass nanoparticles with uniform size and shape

K. Zheng (Sp), A.R. Boccaccini, E. Boccardi, F. Cirialdo, P. Balasubramanian, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) (Germany)

A2-165

Systematic post-operative clinical assessment of lumbar ventrolateral vertebroplasty in the large animal model sheep using a minimally-invasive approach

R.W. Kinne (Sp), S. Bischoff, J. Borowski, O. Brinkmann, M. Bungartz, F. Gunnella, V. Horbert, E. Kunisch, A. Sachse, H. Schubert, L. Xin, Jena University Hospital (Germany); J. Bossert, K.D. Jandt, S. Maenz, Friedrich Schiller University Jena (Germany); J. Günster, B. Illerhaus, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin (Germany); J. Mika, University Hospital Giessen-Marburg, Campus Giessen (Germany)

A2-171

Dual setting system – characterization of PEG-based-hydrogel/brushite composites for biomedical application

M. Rödel (Sp), U. Gbureck, J. Groll, J. Teßmar, University Hospital of Würzburg (Germany)

A3-3

The effect of HAc etching on the degradation behaviour of Mg-5Gd

F. Feyerabend (Sp), M. Gawlik, T. Ebel, M. Steiner, B. Wiese, R. Willumeit-Römer, Helmholtz-Zentrum Geesthacht (Germany); M. Dahms, Hochschule Flensburg (Germany)

A3-95

Degradation behavior of as cast and powder metallurgy processed Mg-Ca alloys

E. Nidavolu (Sp), T. Ebel, F. Feyerabend, R. Willumeit-Römer, Helmholtz-Zentrum Geesthacht (Germany); M. Dahms, Flensburg University of Applied Sciences (Germany)

A4-68

Bio-inspired high-performance green biopolymer fibers

H. Bargel (Sp), C. Hayn, A. Heidebrecht, T. Scheibel, University of Bayreuth (Germany)

Programme Oral Poster Session Tuesday

Room Goethe I	
Oral poster session (cont.)	
Chair	T.F. Keller, Deutsches Elektronen-Synchrotron DESY (Germany)
A5-112	Diatom biosilica for catalytic and adsorptive applications C. Fischer (Sp), E. Brunner, Technische Universität Dresden (Germany)
A5-131	Gallotannin polyphenol enhancement of biomimetic enzymatic hydrogel mineralization T. Douglas (Sp), A. Skirtach, Ghent University (Belgium); M. Feuereisen, A. Schieber, University of Bonn (Germany); J. Keppler, Christian-Albrechts-Universität zu Kiel (Germany); P. Ricquier, s.a. Ajinomoto OmniChem n.v. (Belgium); M. Vandrovcová, Czech Academy of Sciences (Czech Republic)
A7-55	Starch in textile application: modification, processing and product development P. Manvi (Sp), T. Gries, RWTH Aachen University (Germany); G. Seide, Maastricht University (The Netherlands)
B2-8	Recombinant spider silk proteins used as biomedical coating material C. Borkner (Sp), G. Lang, E. Möller, A. Pellert, T. Scheibel, S. Wohlrab, University of Bayreuth (Germany)
B3-176	Effects of cross-linking modifications on collagen: a preliminary biological evaluation M. Vacchini (Sp), University of Milano-Bicocca (Italy)
B4-119	Endothelialization of polymethylpentene fibers as a step towards patient-specific medical devices A. Wenz (Sp), University of Stuttgart (Germany), P.J. Kluger, Reutlingen University/Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, Stuttgart (Germany); K. Linke, M. Schandar, Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, Stuttgart (Germany); E. Novosel, Novalung, Heilbronn (Germany)
B5-126	Hybrid poly-lactide/gelatin electrospun scaffolds with controlled hydrophilicity and wettability. G. Piccirillo (Sp), B. Bochicchio, M.V. Ditaranto, A. Pepe, University of Basilicata, Potenza (Italy); S. Hinderer, K. Schenke-Layland, University of Tübingen (Germany)
B5-133	Funktion and structure - Combined optical functionality and specific bio-interaction for multifunctional biomedical materials T. Sabel (Sp), M.C. Lensen, Technische Universität Berlin (Germany)
C1-74	Characterization of wear particles and ions after in-vitro testing of total hip implants H. Zohdi (Sp), University of Bern (Switzerland); B. Andreatta, R. Heuberger, RMS Foundation, Bettlach (Switzerland)

Programme Oral Poster Session Tuesday

Room Goethe I	
Oral poster session (cont.)	
Chair	T.F. Keller, Deutsches Elektronen-Synchrotron DESY (Germany)
C2-148	Bacterial adhesion to PEEK compared to exemplary dental ceramic, metallic and composite materials L. Scheideler (Sp), J. Geis-Gerstorf, F. Rupp, M. Spiesshofer, S. Spintzyk, University Hospital Tübingen (Germany)
C3-121	Attachment of nanoparticle drug-release systems on shish-kebab structured poly (caprolactone) nanofibers D. de Cassan (Sp), H. Menzel, S. Sydow, Technische Universität Braunschweig (Germany); P. Behrens, N. Schmidt, Leibniz Universität Hannover (Germany)
C6-66	Production of biocompatible PHBV based nanofibrous sponge-like scaffolds for bone tissue engineering O. Colpankan Gunes (Sp), B. Cecen, H. Havitcioglu, A. Ziyilan Albayrak, Dokuz Eylul University (Turkey); I. Unalan, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) (Germany)
C6-141	Improved nanofleeces for cell culture applications T. Kürbitz (Sp), Anhalt University of Applied Sciences (Germany); A. Friedmann, A. Heilmann, Fraunhofer Institut für Mikrostruktur von Werkstoffen und Systemen IMWS (Germany); M. Götze, G. Hillrichs, O. Krimig, Hochschule Merseburg (Germany)



Poster Presentations Tuesday & Wednesday

19:30	Poster discussion with snacks and drinks in the foyer of the lecture halls poster evening barbecue
	Foyer of the conference hotel
A1-62	Investigating the compressibility of spray dried alumina-zirconia granules for use in orthopaedics - an easy to use and fast method R. Adjiski, J. Bossert, K.D. Jandt, S. Maenz, M. Mühlstädt, Friedrich Schiller University Jena (Germany); K. Hans, T. Oberbach, Mathys Orthopädie GmbH, Mörsdorf (Germany); U. Herrmann, R. Söllner, Barat Ceramics GmbH, Auma-Weidatal (Germany)
A1-73	Biochemical modification of extruded protein nanofibers K. Stapelfeldt, D. Brüggemann, C. Fischer, N. Suter, University of Bremen (Germany)
A2-27	Microstructure and properties of plasma sprayed bioactive glass ceramics coatings A. Dobrádi, M. Enisz-Bódogh, K. Kovács, University of Pannonia (Hungary)
A2-34	Impact of chloride ions on apatite mineralisation on Bioglass® 45S5" J. Brandt-Slowik, C. Bocker, D.S. Brauer, G. Kirste, Friedrich Schiller University Jena (Germany)
A3-18	Sputtered, micro structured freestanding FeMn foils as biodegradable material T. Jurgeleit, E. Quandt, C. Zamponi, Christian-Albrechts-Universität zu Kiel (Germany)
A3-59	Exploring the effects of organic components on the degradation of magnesium in vitro under physiological conditions R. Hou, F. Feyerabend, R. Willumeit-Römer, Helmholtz-Zentrum Geesthacht (Germany)
A3-76	Influence of laser treatment on the corrosion behavior of Mg-1Zn-1Ca and Mg-3Zn-0.3Ca alloys N. Pulido González, J. Rams, B. Torres, Universidad Rey Juan Carlos, Madrid (Spain)
A3-110	PLA based CaCO₃ composite fibers for textile scaffolds in hard tissue regeneration C. Hinüber, H. Brünig, U. Gohs, G. Heinrich, Leibniz Institute of Polymer Research Dresden (IPF) (Germany); J. Tondera, Technische Universität Dresden (Germany)
A3-116	Functionalization of polymer fibers with heparan sulfate as a representative of the extracellular matrix I. Wille, P. Behrens, Leibniz Universität Hannover (Germany); A. Warnecke, Hannover Medical School (Germany)
A4-89	Adjusted material-cell interaction using engineered spider silk proteins V. Trossmann, E. DeSimone, T. Scheibel, University of Bayreuth (Germany)
A4-91	Effect of a bioinspired microstructure surface on platelet adhesion T. Pham Thanh, J. Bossert, G. Gastrock, K.D. Jandt, C. Lüdecke-Beyer, S. Maenz, J. Schumacher, U. Settmacher, S. Wiedemeier, J. Zanow, Friedrich Schiller University Jena (Germany)
A4-101	Cellular interactions with extruded protein nanofibers N. Suter, D. Brüggemann, K. Stapelfeldt, University of Bremen (Germany)
A4-182	Sarcoma osteogenic-like Saos-2 cells on the silica nanofibres coated with nanodiamond M. Steinerova, E. Filova, A. Kromka, M. Domonkos, L. Bacakova, The Czech Academy of Sciences, Prague (Czech Republic)

Poster Presentations Tuesday & Wednesday

A7-16	Development and characterization of hybrid hydrogel based on oxidized alginate and keratin for tissue engineering applications S. Reakasame, A.R. Boccaccini, F. Künzel, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) (Germany)
	Foyer of the conference hotel
A7-153	Preparation and properties of high strength and antibacterial zinc ion coordinated dual network structure hydrogels of imidazole /GelMA C. Ning, J. He, South China University of Technology (China); G. Tan, Guangdong University of Technology (China)
A7-173	Synthetic biology approaches toward protein-based materials E. Sun, S. Kou, Hong Kong University of Science and Technology (Hong Kong SAR of China)
B1-142	In vivo performance of polymeric photodynamic active biomaterials for periodontal regeneration S. Kranz, M. Durkalets, A. Guellmar, B. Sigusch, A. Voelpel, Jena University Hospital (Germany); V. Albrecht, biolitec GmbH (Germany); A. Berg, Innovent e.V. (Germany)
B1-183	Reduction of microorganisms on nano-rough titanium surfaces and related microbial genetic response N. Stefani, Leibniz-Institut für Naturstoff-Forschung und Infektionsbiologie, Leibniz (Germany); M. Schürmann, Friedrich Schiller University Jena (Germany)
B3-181	The European user access program nanoscience foundries and fine analysis (NFFA) T.F. Keller, M. Abuin, A. Stierle, Deutsches Elektronen-Synchrotron DESY (Germany)
C2-13	Antimicrobial efficacy of strontium and zinc glasses and glass ionomer cements against clinically relevant bacteria H. Mustafa, D. Brauer, Friedrich Schiller University Jena (Germany); R. Martin, F. Raja, T. Worthington, Aston University (United Kingdom)
C2-37	Mechanical properties of water-soluble polyvinyl alcohol parts fabricated by fused deposition modelling J. Kuttig, P.H.-B. Bui, J. Geis-Gerstorfer, C. Schille, E. Schweizer, S. Spintzyk, A. Unkovskiy, University Hospital Tübingen (Germany)
C2-51	Corrosion behavior of dental CoCr alloys made by different digital workflow processes compared to cast CoCr alloys C. Schille, E. Schweizer, J. Geis-Gerstorfer, University Hospital Tübingen (Germany)
C2-58	Mechanical properties of biocompatible polymer-based resin for dental applications fabricated by stereolithography P.H.-B. Bui, J. Geis-Gerstorfer, J. Kuttig, J. Polligkeit, C. Schille, S. Spintzyk, University Hospital Tübingen (Germany)
C2-117	New crosslinking diluents for dental materials N. Moszner, J. Angermann, U. Fischer, Ivoclar Vivadent AG (Liechtenstein)

Poster Presentations Tuesday & Wednesday

C2-149 **Effect of the pH of bleaching H2O2 solutions in the enamel morphology, hardness and color**

A. Topete, Instituto Superior Técnico, University of Lisbon, Universidade de Lisboa (Portugal); A. Branco, A. Oliveira, Centro de Química Estrutural, Instituto Superior Técnico, University of Lisbon (Portugal); C. Figueiredo-Pina, Instituto Politécnico de Setúbal, Portugal; CeFEMA, Instituto Superior Técnico, Portugal (Portugal); M. Polido, CiiEM, Instituto Superior de Ciências da Saúde Egas Moniz (Portugal); A.P. Serro, Centro de Química Estrutural, Instituto Superior Técnico, University of Lisbon (Portugal); Centro de Investigação Interdisciplinar Egas Moniz, Instituto Superior de Ciências da Saúde Egas Moniz, Monte da Caparica (Portugal)

Foyer of the conference hotel

C2-150 **Mechanical properties of recent CAD/CAM polymer materials**

S. Spintzyk, J. Geis-Gerstorfer, C. Lyu, T. Sawada, University Hospital Tübingen (Germany); D. Oldenburger, VOCO GmbH (Germany)

C3-122 **Multilayers of nanoparticles with alginate, chondroitin sulfate and hyaluronic acid for graded implants**

S. Sydow, H. Menzel, Technische Universität Braunschweig (Germany)

C3-147 **Design of drug eluting ophthalmic lenses through a multi-layer approach**

A. Topete, Instituto Superior Técnico, Universidade de Lisboa (Portugal); R. Colaço, Departamento de Engenharia Mecânica, Instituto Superior Técnico, Universidade de Lisboa (Portugal); A. Pimenta, Centro de Química Estrutural, Instituto Superior Técnico, Universidade de Lisboa (Portugal); Departamento de Engenharia Mecânica, Instituto Superior Técnico, Universidade de Lisboa (Portugal); B. Saramago, Centro de Química Estrutural, Instituto Superior Técnico, University of Lisbon (Portugal); A.P. Serro, Centro de Química Estrutural, Instituto Superior Técnico, University of Lisbon (Portugal); Centro de Investigação Interdisciplinar Egas Moniz, Instituto Superior de Ciências da Saúde Egas Moniz, Monte da Caparica (Portugal)

C3-151 **Drug loaded silicon based soft contact lenses: effect of terminal sterilization methods on their performance**

A. Oliveira, R. Colaço, Universidade de Lisboa (Portugal); M. Braga, D. Ghisleni, T.J.A. Pinto, Universidade de São Paulo (Brazil); R. Galante, Universidade de São Paulo and Universidade de Lisboa (Portugal); A.P. Serro, Universidade de Lisboa and Egas Moniz - Cooperativa de Ensino Superior (Portugal)

C4-9 **Living-non-living architectures from microbial cellulose**

K. Zolotovskiy, M. Gazit, C. Ortiz, Massachusetts Institute of Technology (United States)

C4-130 **Microfibers and nanoparticles with controlled dimensions of a hyaluronic acid derivative**

C. Fiorica, S. Agnello, F. Bongiovi, G. Giammona, F.S. Palumbo, G. Pitarresi, University of Palermo (Italy)

C4-143 **Modeling the viscosity of silicone rubber during high-speed infrared curing**

J. Stieghorst, Hannover Medical School (Germany); T. Doll, Hannover Medical School, Cluster of Excellence Hearing4all (Germany)

C5-128 **Nir laser-responsive folate-targeted gold nanorods as efficient theranostic tool for osteosarcoma treatment**

N. Mauro, G. Cavallaro, G. Giammona, A. Li Volsi, M. Licciardi, C. Scialabba, P. Varvarà, V. Vetri, University of Palermo (Italy)

Programme Wednesday 08:00 - 09:00

Room Goethe I

Plenary Lectures

Chair

08:00

T.F. Keller, Deutsches Elektronen-Synchrotron DESY (Germany)

Supramolecular engineering of functional biomaterials

A. Mata, Queen Mary University of London, School of Engineering and Materials Science (UK)



The talk will summarize our lab's work developing novel biomaterial platforms emerging from the integration of supramolecular chemistry, intermolecular interactions, and engineering and biofabrication principles. These systems aim to use peptides and proteins in innovative ways to transform single molecules into useful macroscopic materials such as complex biomimetic environments, hierarchical biomineralizing matrixes, and dynamic structures that can grow and self-heal. One example consists of a tuneable organic matrix with the capacity to generate materials exhibiting crystallographically aligned hydroxyapatite nanocrystals with hierarchical order up to the macroscale, be grown over large uneven areas, and exhibit high stiffness and acid resistance. Another example includes a peptide-protein system with the capacity to access different co-assembling pathways, structures, and resulting properties. In one scenario, the system is capable of accessing non-equilibrium for substantial periods of time enabling the growth of vascular-like tubular structures with a high spatio-temporal control. Other examples that aim to create functional macroscopic biomaterials based on predictable interactions at the molecular scale will be presented. These systems offer opportunities in tissue engineering, regenerative medicine, and biomimetic in vitro models.

08:30

Natural polymer-based scaffolds for delivery of therapeutics to promote enhanced bone & cartilage repair

F. O'Brien, RCSI Royal College of Surgeons (Ireland)



Tissue engineering typically uses a combination of biomaterial scaffolds, cells and signaling mechanisms (such as growth factors or mechanical stimuli) to restore the function of damaged or degenerated tissues. The research carried out in our laboratory investigates each of these three areas with target applications in bone, cartilage, cardiovascular, corneal, respiratory and neural tissues. A major focus of ongoing research has been to functionalise natural polymer based scaffolds for use as delivery systems for biomolecules with a particular interest in the delivery of nucleic acids (including pDNA, siRNA and microRNA). Our group also uses these scaffolds as advanced 3D pathophysiology in vitro systems for drug development and for studying cellular crosstalk in co-cultures and understanding disease states in cancer, angiogenesis, immunology and infection. In addition, we have a major interest in studying the response of cells to mechanical stimuli (mechanobiology) and using biophysical stimuli (applied by bioreactors or controlled by scaffold stiffness) to regulate stem cell differentiation. A number of technologies from our lab have been patented resulting in the formation of a spin out company, SurgaColl Technologies, which has been successful in translating products from our lab to the clinic. This presentation will provide an overview of ongoing research with a particular focus on layered biomaterials for promoting stable cartilage formation in joint repair and on scaffold-based delivery of therapeutics for enhancing vascularization & bone repair

Programme Wednesday 09:00 - 10:00

09:00

Announcement of the Poster Award Winner

K.D. Jandt, Chairman of the conference, Friedrich Schiller University Jena (Germany)



09:10 Coffee Break

Chair

09:40

Room Goethe III	Room Bach	Room Schiller
A5 Biological materials and biomineralization	B2 Biocompatibility	C4 Innovation in fabrication including 3D printing / additive manufacturing / biofabrication of biomaterials
P.J. Kluger, Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, Stuttgart (Germany)	A. Taubert, University of Potsdam (Germany)	K. Borchers, Fraunhofer Institute for Interfacial Engineering and Biotechnology (Germany)
clickECM – integration of azide groups into cell-derived human extracellular matrix P.J. Kluger (Sp), Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, Stuttgart (Germany); M. Bach, S. Keller, G. Tovar, University of Stuttgart (Germany); V. Wittmann, University of Konstanz (Germany)	Can an integral forming immunoassay be the next-generation standard test to evaluate the long-term integration of implant materials? E. Preuße (Sp), S. Begand, M. Johannes, S. Kurz, H. Lausch, J. Opitz, J. Pasold, K. Wegner, K. Wiley, Fraunhofer Institute for Ceramic Technologies and Systems IKTS (Germany)	Biopolymer-based inks for bioprinting zonal hydrogels for cartilage tissue engineering K. Borchers (Sp), Fraunhofer Institute for Interfacial Engineering and Biotechnology (Germany); E. Hoch, former University of Stuttgart (Germany); S. Stier, former Fraunhofer Institute for Interfacial Engineering and Biotechnology (Germany)

Programme Wednesday 10:00 - 10:40

10:00

Chair

10:20

Room Goethe III	Room Bach	Room Schiller
A5 Biological materials and biomineralization (cont.)	B2 Biocompatibility (cont.)	C4 Innovation in fabrication including 3D printing / additive manufacturing / biofabrication of biomaterials (cont.)
Ways towards novel CaCO3 composites – how inorganic, synthetic and biological macromolecular additives influence crystallization M. Montigny (Sp), B. Barton, E.-M. Christ, H. Frey, A. Kühnle, M. Nalbach, W. Tremel, Johannes Gutenberg University Mainz (Germany)	Neutron reflectometry reveals structural details of antibody and serum protein adsorption onto polymer brushes V. Latza (Sp), I. Rodriguez Loureiro, E. Schneck, Max Planck Institute of Colloids and Interfaces (Germany); G. Fragneto, Institut Laue-Langevin, Grenoble (France); A. Halperin, Université Joseph Fourier (France)	Characterization of cellular behavior in bioinks for the printing of vascularized bone tissue equivalents A. Wenz (Sp), G.E. Tovar, University of Stuttgart (Germany); K. Borchers, Fraunhofer Institute for Interfacial Engineering and Biotechnology (Germany); P.J. Kluger, Reutlingen University/Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, Stuttgart (Germany); I. Tjoeng, Hochschule Esslingen (Germany)
	A4 Bioinspired materials / biomimetic materials A. Taubert, University of Potsdam (Germany)	
Towards understanding silica-biomineralization: solid-state NMR spectroscopy, DNP investigations, and MD simulations of the organic/inorganic interface in silica biohybrids S. Brückner (Sp), E. Brunner, S. Donets, R. Gutiérrez, A. Jantschke, Technische Universität Dresden (Germany); M. Abacilar, A. Geyer, Philipps-Universität Marburg (Germany); M. Baldus, E. Koers, Utrecht University (The Netherlands)	Surfaces and interfaces for bioinspired calcium phosphate hybrid materials A. Taubert (Sp), University of Potsdam (Germany)	Additive manufacturing of biodegradable magnesium alloys L. Jauer (Sp), Fraunhofer Institute for Laser Technology ILT, Aachen (Germany)

Programme Wednesday 10:40 - 11:50

	Room Goethe III	Room Bach	Room Schiller
	A5 Biological materials and biomineralization (cont.)	A4 Bioinspired materials / biomimetic materials (cont.)	C4 Innovation in fabrication including 3D printing / additive manufacturing / biofabrication of biomaterials (cont.)
10:40	Polarization of piezo-electric PVDF membrane on titanium for enhancing biological property C. Ning (Sp), G. Tan, Guangdong University of Technology (Guangzhou); Z. Zhou, Guangdong University of Technology, South China University of Technology (China)	Structure and properties of calcium carbonate microlens arrays I. Schmidt (Sp), P. Fratzl, W. Wagermaier, Max Planck Institute of Colloids and Interfaces (Germany); K. Lee, Chungnam National University (South Korea); P. Werner, Max Planck Institute of Microstructure Physics (Germany); E. Zolotoyabko, Technion - Israel Institute of Technology (Israel)	Segmental bone implants from dual-setting HEMA – calcium phosphate cement system S. Meininger (Sp), P. Dalton, U. Gbureck, J. Groll, University Hospital of Würzburg (Germany)
11:00	Coffee Break		
	Room Goethe III	Room Bach	Room Schiller
	C3 Drug and gene delivery	A7 Hydrogels and biobased & synthetic polymers	C6 Tissue engineering / regenerative medicine
Chair	A. Oliveira, Universidade de Lisboa (Portugal)	G. Messina, University of Catania (Italy)	D. Eglin, AO Research Institute Davos (Switzerland)
11:30	Drug loaded ophthalmic lenses: the impact of different sterilization procedures on drugs, materials and drug release behaviour A. Oliveira (Sp), P. Matos, B. Saramago, Universidade de Lisboa (Portugal); A.P. Serro, Universidade de Lisboa and Egas Moniz - Cooperativa de Ensino Superior (Portugal)	Cryogels as potential scaffolds for wound healing applications M. Schnabelrauch (Sp), A. Wartenberg, INNOVENT e.V. (Germany); M.E. Pedersen, T. Thu Vuong, Nofima AS (Norway); R. Schmidt, H.-P. Suso, Biovotec AS (Norway)	Highly functionalized hyaluronan-tyramine as cell-compatible hydrogels with a wide range of biophysical properties D. Eglin (Sp), M. Alini, M. D'Este, C. Loebel, AO Research Institute Davos (Switzerland); M. Zenobi-Wong, ETH-Zurich (Switzerland)

Programme Wednesday 11:50 - 12:50

	Room Goethe III	Room Bach	Room Schiller
	C3 Drug and gene delivery (cont.)	A7 Hydrogels and biobased & synthetic polymers (cont.)	C6 Tissue engineering / regenerative medicine (cont.)
11:50	Effects of loading time and temperature on drug release profiles from ophthalmic lens materials A. Cipitria Sagardia (Sp), G.N. Duda, D. Garske, A. Lückgen, Charité - Universitätsmedizin Berlin (Germany); R.M. Desai, D.J. Mooney, Harvard University (United States); P. Fratzl, Max Planck Institute of Colloids and Interfaces (Germany)	Hydrolytically-degradable click alginate hydrogels A. Cipitria Sagardia (Sp), G.N. Duda, D. Garske, A. Lückgen, Charité - Universitätsmedizin Berlin (Germany); R.M. Desai, D.J. Mooney, Harvard University (United States); P. Fratzl, Max Planck Institute of Colloids and Interfaces (Germany)	Completely defined adipogenic differentiation and long-term-maturation of hASCs on a novel cellulose-based material P.A. Volz (Sp), Reutlingen University (Germany); P.J. Kluger, Reutlingen University/Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, Stuttgart (Germany); S. Nellinger, University of Hohenheim (Germany);
12:10	Graphene oxide containing hyaluronic acid based nanogels for the potential treatment of colorectal cancer N. Mauro (Sp), G. Cavallaro, C. Fiorica, G. Giammona, G. Pitarresi, University of Palermo (Italy)	Self-assembling peptide hydrogels for 3D architecture for mesenchymal stem cells culture G. Messina (Sp), G. Marletta, University of Catania (Italy); M. Cavo, A. Gloria, T. Russo, S. Scaglione, National Research Council (CNR) (Italy); M. Dettin, University of Padua, (Italy); A. Zamuner, University of Padua (Italy)	Polyphosphate as a metabolic fuel in metazoa: a foundational breakthrough invention for biomedical applications/ implants W. Müller (Sp), X. Wang, University Medical Center of the Johannes Gutenberg University (Germany)
12:30	Nanoporous silica nanoparticles as delivery systems for neuroprotective factors N. Schmidt (Sp), Leibniz Universität Hannover (Germany); P. Behrens, J. Schulze, A. Warnecke, Hannover Medical School (Germany)	Lab in a Tube: or the combination of DNA purification and amplification by using a poly(2 oxazoline) based all-in-one system M. Leiske (Sp), C. Englert, M. Gottschaldt, M. Hartlieb, D. Pretzel, U.S. Schubert, Friedrich Schiller University Jena (Germany); M. Hentschel, C. Paulenz, Analytik Jena AG (Germany)	A hyaluronic acid derivative as a coating film for an electrospun cell releasing system in the treatment of corneal wounds C. Fiorica (Sp), S. Agnello, G. Giammona, F.S. Palumbo, G. Pitarresi, University of Palermo (Italy)

Programme Wednesday 12:50 - 14:40

	Room Goethe III	Room Bach	Room Schiller
12:50	C3 Drug and gene delivery (cont.) Drug carriers made of genetically engineered spider silk proteins allow defined cellular uptake and controlled drug release H. Herold (Sp), E. Doblhofer, T. Scheibel, M.B. Schierling, University of Bayreuth (Germany)	A7 Hydrogels and biobased & synthetic polymers (cont.) Nano-surface properties of biopolymer coatings for oral drug delivery M. Brogly, A. Fahs, S. Bistac, Université de Haute-Alsace, Mulhouse (France)	C6 Tissue engineering / regenerative medicine (cont.) Bioactive multilayered electrospun scaffolds for interface tissue engineering applications L. Liverani (Sp), A.R. Boccaccini, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) (Germany)
13:10	Lunch Break		
	Room Goethe III	Room Bach	Room Schiller
Chair	A1 Bio-nano materials D. Brüggemann, University of Bremen (Germany)	E Special session SFB TRR 79 K. Lips, Justus Liebig University Giessen (Germany)	Round table discussion N. Stark, Straub Medical AG, Wangs (Switzerland)
14:20	Creating novel biomaterials from extruded biopolymer nanofibres D. Brüggemann (Sp), University of Bremen (Germany)	Decrease of TrkB expression at the interface of bone substitute materials in rat osteoporotic fractures K. Lips (Sp), T. El Khassawna, V. Kauschke, S. Ray, Justus-Liebig-University Giessen (Germany); M. Gelinsky, M. Schumacher, Medical Faculty and University Hospital, Technische Universität Dresden (Germany); T. Hanke, Technische Universität Dresden (Germany); C. Heiss, U. Thormann, University Hospital of Giessen-Marburg, Campus Giessen (Germany); O. Kilian, Zentralklinik Bad Berka (Germany)	Facing the new EU Medical Device Regulation • What will the MDR look like? • How will it disrupt and transform the medical device industry? • What challenges do companies face? • How to turn regulatory complexity into competitive advantage? • How will it impact innovation? The open podium is meant to discuss highly current topics around the just released new MDR.

Programme Wednesday 14:40 - 15:20

	Room Goethe III	Room Bach	Room Schiller
14:40	A1 Bio-nano materials (cont.) Small targeting molecules organized on nanoparticles outperform antibody activity M. Meneghetti (Sp), F. Biscaglia, L. Litti, C. Menna, S. Mocellin, D. Nitti, S. Rajendran, A. Rosato, R. Sommaggio, University of Padova (Italy); G. Bocchinfuso, P. Conflitti, A. Palleschi, University of Rome Tor Vergata (Italy)	E Special session SFB TRR 79 (cont.) Sustained release of therapeutic proteins from adhesive polyelectrolyte complex nanoparticle coatings for bone healing M. Müller (Sp), Leibniz Institute of Polymer Research Dresden (Germany); V. Alt, K. Lips, M. Siebert, Justus-Liebig-Universität Gießen, Universitätsklinikum Gießen und Marburg (Germany); E.A. Cavalcanti, A.L. Grab, Ruprecht-Karls-Universität Heidelberg (Germany); M.L. Möller, Technische Universität Dresden (Germany); B. Urban, D. Vehlouw, Leibniz-Institut für Polymerforschung Dresden e.V (Germany)	Round table discussion (cont.) Share different views concerning the impact of the changes and strategies to deal with the required transformation. The open discussion between panelists and the audience, between industry, academia and authorities shall foster the mutual understanding for the potentially fundamental impact on medical device innovation.
15:00	pH-Dependent ordered fibrinogen adsorption on polyethylene single crystals C. Helbing (Sp), J. Bossert, K.D. Jandt, R. Stöbel, Friedrich Schiller University Jena (Germany); M.M.L. Arras, Oak Ridge National Laboratory (United States); D.A. Hering, University Hospital Münster (Germany)	Osteocytes remedy bone loss by balancing RANKL/OPG expression in osteoporotic sheep model T. El Khassawna (Sp), D.E. Daghma, C. Heiss, S. Kern, K. Lips, D. Malhan, S. Stötzel, Institute for Experimental Trauma Surgery, Faculty of Medicine, Justus-Liebig University, Giessen (Germany)	

Programme Wednesday 15:20 - 16:00

	Room Goethe III	Room Bach	Room Schiller
	A1 Bio-nano materials (cont.)	E Special session SFB TRR 79 (cont.)	Round table discussion (cont.)
15:20	The effect of surface modification of Ti surfaces on osteoblast behaviour B. Garipcan (Sp), E. Dönmez, Bogaziçi University (Turkey)	Macroporous Ti-Nb scaffolds as hard tissue implants R. Schmidt (Sp), M. Calin, A. Gebert, Leibniz Institute for Solid State and Materials Research Dresden (Germany); J. Baumann, M. Gelinsky, M. Schumacher, Technische Universität Dresden (Germany); J. Eckert, Montanuniversität Leoben (Austria)	
15:40	Graphene-biomolecule nanohybrids for biomedical applications G. Wei (Sp), University of Bremen (Germany)	156 New in situ tissue engineering approach - scaffold functionalization with a central, growth factor-loaded depot for cell attraction and stimulation of angiogenesis in bone M. Quade (Sp), S. Duin, M. Gelinsky, A. Lode, Technische Universität Dresden (Germany); A. Gabrielyan, A. Roesen-Wolff, University Hospital Carl Gustav Carus, Technische Universität Dresden (Germany)	



Programme Wednesday 16:00 - 17:00

	Room Goethe III	Room Bach	Room Schiller
	A1 Bio-nano materials (cont.)	E Special session SFB TRR 79 (cont.)	Round table discussion (cont.)
16:00	Self-assembled protein nanofibers as basis for novel biomaterials C. Helbing (Sp), K.D. Jandt, Friedrich Schiller University Jena (Germany); T. Deckert-Gaudig, Leibniz Institute of Photonic Technology (Germany); G. Wei, University of Bremen (Germany)	Analysis of the fatigue properties of a new binary β-based Ti-Nb alloy designed for implant applications A. Reck (Sp), Technische Universität Dresden (Germany); M. Calin, A. Gebert, S. Pilz, The Leibniz Institute for Solid State and Materials Research IFW Dresden (Germany); J. Eckert, Montanuniversität Leoben (Austria); M. Zimmermann, Technische Universität Dresden/Fraunhofer Institute for Materials and Beam Technology IWS (Germany)	
16:20	Vaterite bioprecipitated by bacteria C. Montoya (Sp), M. Marquez, Universidad Nacional de Colombia (Colombia)	Adjustable release of drugs from silica/collagen xerogels S. Röbber (Sp), T. Hanke, B. Kruppke, Technische Universität Dresden (Germany); J. Burhenne, D. Hose, A. Seckinger, University Medical Center Heidelberg (Germany); S. Wenisch, Justus-Liebig-University Giessen (Germany)	
16:40	Room Goethe I Closing remarks T.F. Keller, Deutsches Elektronen-Synchrotron DESY (Germany)		



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As a research and technology service provider, the Fraunhofer IKTS develops modern ceramic high-performance materials, customized industrial manufacturing processes and creates prototype components and systems in complete production lines from laboratory scale to pilot plant scale. Furthermore, the institute has expertise in diagnostics and testing of materials and processes. Test procedures in the fields of acoustics, electromagnetics, optics, microscopy and laser technology contribute substantially to the quality assurance of products and plants.

Fraunhofer IKTS works in eight market-oriented business divisions in which it demonstrates and qualifies ceramic technologies and components as well as non-destructive test methods for new industries, product concepts and markets beyond the conventional areas of application. These disciplines include ceramic materials and processes, mechanical and automotive engineering, electronics and microsystems, energy, environmental and process engineering, bio- and medical engineering, optics as well as materials and process analysis.

Based on comprehensive materials expertise in advanced ceramic materials, the Institute's development work covers the entire value creation chain, all the way to prototype production. Fraunhofer IKTS is distinguished by its multiple areas of expertise: The triad of materials know-how, production technologies and systems integration is enhanced by the highest level of materials and process analytics. Chemists, physicists, materials scientists and engineers work together on an interdisciplinary basis at IKTS, with the support of highly skilled technicians.

The Institute is therefore available as a competent consulting partner and starting point for all ceramics-related issues: a real "one-stop shop" for all things ceramic.

Among our unique areas of expertise, we offer:

End-to-end production lines: from starting materials to prototypes

For any class of ceramic materials, we have access to all the standard processes of raw materials preparation, forming, heat treatment and finish processing. Where it makes sense, the Institute can even conduct phase synthesis. In functional ceramics, we hold a particular core competency in paste and film technology. Multiple clean rooms and low-contamination production areas are kept at the ready, among other things, for multilayer ceramics and highly purified oxide ceramics lines of technology.

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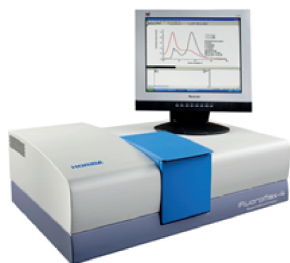
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BioÖkonomie 2030



Bundesministerium
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Den Strukturwandel zu einer nachhaltigen, bio-basierten Wirtschaft unterstützt die Bundesregierung mit der Nationalen Forschungsstrategie BioÖkonomie 2030. Das Bundesministerium für Bildung und Forschung (BMBF) fördert mit der BioÖkonomie-Strategie die Forschung und Entwicklung innovativer Produkte und Verfahren auf den Gebieten

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Currently Optics11 provides researchers the opportunity to experience the Piuma or Chiaro Nanoindenter by remote or local demonstrations throughout Europe. In case of interest, please inform us at the BioMAT conference or via info@optics11.com.

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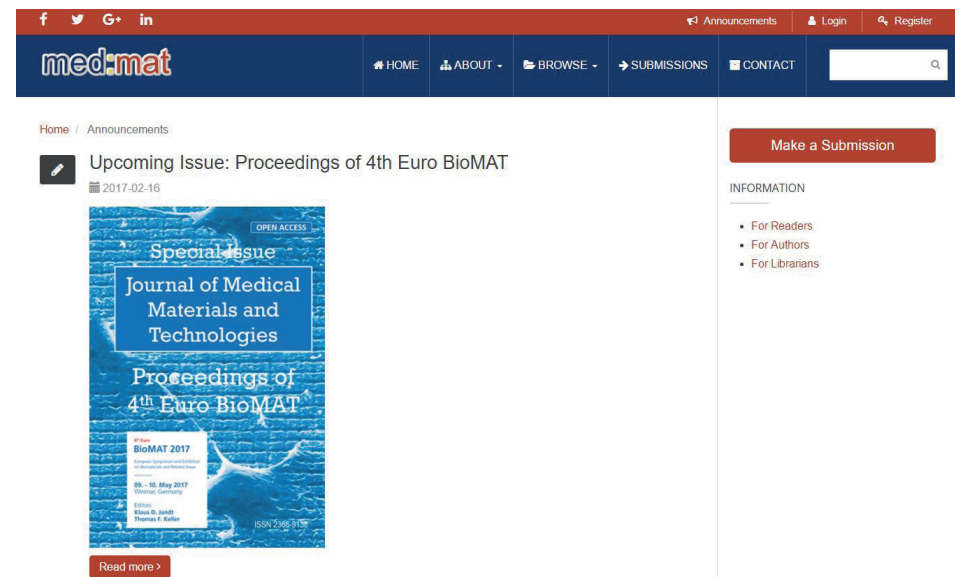
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Proceedings of 4th Euro BioMAT



Accepted abstracts will be published in the open access journal Medical Materials and Technologies.

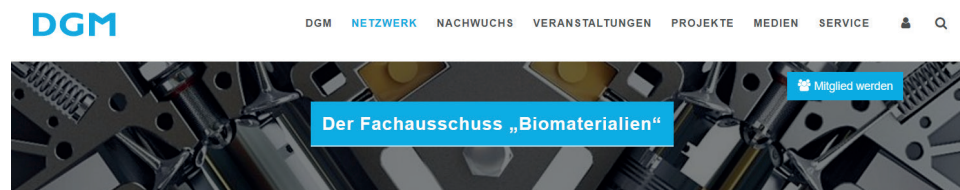
Furthermore the journal offers a publication of accepted submissions as extended abstracts with 4 pages (will get its own DOI) for € 50.

Ad on:

Authors can submit their full paper for 200 Euros in the open access journal Medical Materials and Technologies: <http://eurobiomat.medmat.de>

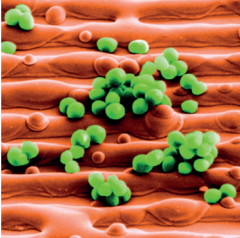
Do you have any questions? Please contact the editor-in-chief@medical-materials.net!

DGM Panel of Experts for Biomaterials



Biomaterialien

Struktur, Mitglieder & Termine



Der DGM-Fachausschuss versteht sich als Schnittstelle zwischen Grundlagenforschung und industrieller Entwicklung. Seine Arbeitskreise beschäftigen sich mit bio-inspirierten, abbaubaren und antimikrobiellen Biomaterialien, Dauerimplantaten, dentalen Werkstoffen, Grenzflächen, Tissue Engineering sowie mit Modellierung und Simulationen, Zertifizierung, Zulassung, Normierung und rechtlichen Fragen, die sich durch den Einsatz von Biomaterialien ergeben.

In seiner Zusammensetzung bildet der Fachausschuss mit Materialwissenschaftlern, Physikern, Chemikern, Zell- und Mikrobiologen, Ärzten, Zahnärzten und Ingenieuren aus Hochschulen, Universitätskliniken, Unternehmen und Verbänden wesentliche nationale Kompetenzen über deren Stakeholder ab.

Um die Community bestmöglich zu vernetzen und über neueste Entwicklungen zu informieren, veranstaltet der Fachausschuss unter anderem alle zwei Jahre die internationale Konferenz „Euro BioMat“ sowie die Fortbildung „Biomaterialien: Werkstoffe in der Medizin“.

Goals and Objectives

- Addressing the industrial and scientific issues in the area of known and new materials with interfaces to biological systems, with focus on materials in medicine.
- Development of a scientifically based understanding of materials properties in interaction with biological systems, especially the area of "biological performance" and biocompatibility.
- Focussing the panel on scientific, technical and economic issues in the priority areas resorbable/degradable biomaterials, permanent implants, dental materials, interfaces, tissue engineering, modelling and simulation, antimicrobial biomaterials, biomimetic biomaterials, certification, accreditation, standardization, legal issues.
- Initiating research and development activities: joint projects between universities, research institutes and industry.
- Exchange of experiences between groups that are active in the field of biomaterials, and networking.

The Otto Schott Institute of Materials Research and its Chair of Materials Science



Home

Research

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Home

Welcome to the Otto Schott Institute of Materials Research (OSIM) at the Friedrich Schiller University of Jena

The Otto Schott Institute of Materials Research (OSIM) conducts a broad program of undergraduate, graduate and postgraduate education as well as leading-edge research in materials science. Our investigations focus on relationships between the structure, properties, processing and performance of a wide range of material classes. This knowledge is applied to develop new and improved materials for technological applications, new methods for materials characterization, testing and processing as well as tailored products and components. Although research at OSIM spans a wide range of subjects, investigations can be roughly grouped into the following areas:

» glass and glass ceramics, optical materials

Locations

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Löbdergraben 32, D-07743 Jena
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News

Vor fliegenden Keimen schützen
14.02.2017

Workshop in Jena
13.03.2017

The research of the **Otto Schott Institute of Materials Research (OSIM)** at the Friedrich Schiller University Jena focuses on relationships between the structure, properties, processing and performance of a wide range of material classes.

At the **Chair of Materials Science at the OSIM**, investigations focus on materials for life sciences, polymer nanostructures & thermodynamics and composite materials with a special emphasis on the materials interfaces. In the field of biomaterials, novel protein-based biomaterials, antimicrobial materials surfaces for inhibiting biofilm formation, dental materials and drug delivery systems just to name a few, are created, characterized, and biologically tested. Applications are ranging from the medical field to pharmacology and biotechnology. Molecular self-assembly mechanisms of protein nanofibers, nanostructured surfaces with antimicrobial effect and polymer-graphene based nanocomposites for drug delivery purposes recently attracted the interest of the scientists at OSIM.

Materials characterization at the OSIM comprises the application of state-of-the-art instrumental techniques such as in situ atomic force microscopy and quartz-crystal microbalance, X-ray photoelectron spectroscopy and field emission scanning electron microscopy with focused ion beam, ellipsometry and more. The Chair in Materials Science initiated the panel of experts in biomaterials of the Deutsche Gesellschaft für Materialkunde (DGM) and laid the foundation of this Euro BioMat symposium.

If you are interested to join the DGM Panel of Experts for Biomaterials and/or to cooperate with the Chair of Materials Science at the OSIM please contact:
Prof. Klaus D. Jandt (k.jandt@uni-jena.de).

Tourist Information & Sightseeing-Tour Weimar:

Rich Cultural Heritage Unites with Charming Appearance:

Weimar has as many as three entries in UNESCO's World Heritage list: Classical Weimar comprising 13 buildings and architectural ensembles, the three Bauhaus buildings and the Memory of the World, containing handwritten manuscripts by Goethe. Palaces and parks, museums and monuments - the list of Weimar's sights is splendidly long. Here you find the top ten sights in Weimar with a short description. In addition, we show you how to discover Weimar as its best.

1. Guided Walking Tour

Can be arranged for groups up to 25 people. They have to be booked in advance - at any time and any place, in ten languages.

2. Goethe's Home and Goethe National Museum



Foto: Maik Schuck, © weimar GmbH

One of the most prominent figures of Classical Weimar, Johann Wolfgang von Goethe lived in this Baroque house for almost fifty years. The poet planned the arrangement and furnishing of the rooms as well as its rich collections. The furnishings and fittings from the last few years of Goethe's life have largely been preserved. Shortly after the death of Goethe's last grandson Walther, Goethe's historic house and his art and nature collections passed on to the trusteeship of the Goethe National Museum, founded in 1885. Two museum buildings were built in 1913 and 1935 to accommodate the steadily growing collection.

3. The Bauhaus-Museum



Foto: Maik Schuck, © weimar GmbH

The Bauhaus, opened in April 1919 in Weimar and closed down by the National Socialists in Berlin in

1933, is Germany's most influential and successful cultural export item of the 20th century. The reputation of this interdisciplinary international school of art, architecture, design and stage enjoys worldwide timeliness today, more than 70 years after its closure. The pedagogical, artistic and design ideas of the Bauhaus continue to emanate into the entire world. Many of these innovative ideas were conceived in Weimar. The presentation at the Bauhaus Museum Weimar shows works of Walter Gropius, the founding director of the Bauhaus, as well as those of famous Bauhaus members such as Lyonel Feininger, Gerhard Marcks, Johannes Itten or Paul Klee.

4. City Palace



Foto: Guido Werner, © weimar GmbH

The luxurious rooms are just as impressive as the collection of first-class European art spanning the period from the Middle Ages and the Reformation to the beginning of the twentieth century. The building was once the seat of government and residence of dukes and grand dukes. The highlights of this collection are the Cranach Gallery with other examples of Old German painting located on the ground floor and works by Caspar David Friedrich, Johann Heinrich Wilhelm Tischbein, Auguste Rodin and Max Beckmann. Sculptures and crafts date back to around 1800.

5. Buchenwald Memorial



Foto: © Stiftung Gedenkstätten Buchenwald

The infamous Nazi concentration camp known as Buchenwald existed between 1937 and 1945 on Ettersberg. More than 250,000 people from almost 50 nations were imprisoned there – and over 50,000 of them did not survive. In August 1945, the site was converted by the Soviet occupying forces into an internment camp. Known as Special Camp No. 2, over 28,000 people were held there by the Soviets between 1945 and 1950, including 7,000 who died.

6. The „Deutsches Nationaltheater und Staatskapelle Weimar“



Foto: Guido Werner, © weimar GmbH

This institution is the successor of the Weimar Theatre, whose former director was Goethe. The neoclassical structure was completed in 1908. Over the decades, it has been rebuilt a number of times and has hosted several important political events, the best-known of which is the foundation of the Weimar Republic. Nowadays the German National Theatre is home to the most important theatre company in Thuringia as well as the Staatskapelle Weimar orchestra.

7. Park on the River Ilm



Foto: Guido Werner, © weimar GmbH

It is a place for relaxation and entertainment - both in the past and the present. Important characteristics of the park include the numerous lines of sight linking features such as Goethe's garden house and the Roman House within the park; which connect them to the surrounding countryside. The 48-hectare landscaped park on the edge of Weimar's old town is part of a kilometre-long green stripe along the Ilm. It was created between 1778 and 1828 and houses classical and romantic styles.

8. The Rokoko hall...



Foto: Maik Schuck, © weimar GmbH

The stunning Herzogin Anna Amalia Bibliothek (historical library) gleams in new splendour. There are one million volumes at the new and old libraries. The Historical Library "Duchess Anna Amalia Library" is one of the most famous libraries in Germany. Anna Amalia turned the 'Green Palace' into a library comprising a unique combination of books, art collection and architecture. The most famous place is the Rococo Hall. On the evening of

September 2nd 2004, a devastating fire broke out in the original building of the Herzogin Anna Amalia Library and turned into the largest library fire in Germany since WW II. The historical building, which belongs to the UNESCO World Heritage, was damaged by fire and water, and the third floor and the attic were completely destroyed.

9. Thuringian Bratwurst

The Thuringian grilled sausage "Bratwurst" is a local specialty. According to EU regulations, the sausage is at least 15-20 cm long, consisting of medium-finely ground, seasoned sausage meat enclosed by a thin natural casing. For the Thuringian, his sausage – just like his "Rostbrätel" (grilled pork cutlet) – is not simply a food, it even symbolises a way of life that is expressed by the way it is prepared and eaten.

10. Coffee and cake

The cake from Thuringia is always worth to be tried in one of Weimar's cosy cafes - you can burn the calories during a walk in the surrounding parks!

Via this link you will find more tourist information about Weimar:

<https://www.weimar.de/en/tourismus/service/tourist-information/>



The admission to most museums, exhibitions and the use of iGuide – a multimedia guided tour and the city bus is free with the weimar card.

You also get discounts on performances at the Deutsches Nationaltheater Weimar. The weimar card is valid from the first use for 48 hours and eligible for one-time use of the services listed.



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WERKSTOFFWOCH
27.-29.09.2017
MESSE DRESDEN**

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UND
BIOINSPIRIERTE
MATERIALIEN**



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City Map of Weimar



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