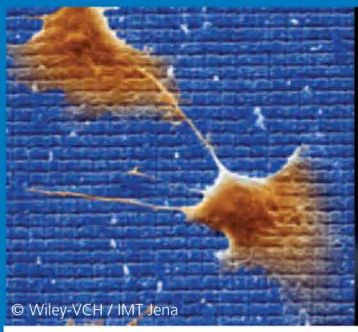
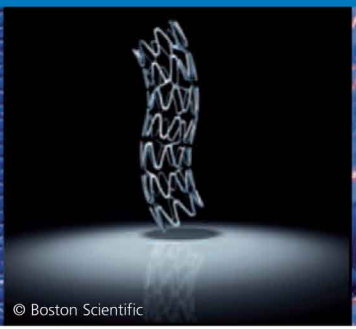
DGM

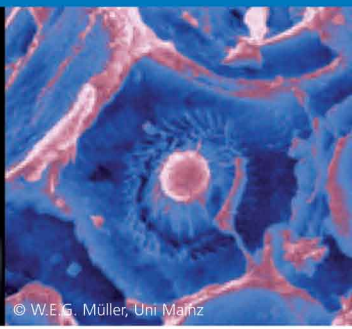
Program

Euro BioMAT

European Symposium on Biomaterials and Related Areas







23.-24. April 2013

Weimar
Germany

Deutsche Gesellschaft
für Materialkunde e.V. - DGM

www.dgm.de/biomat
biomat@dgm.de

EURO BioMat 2013 - Overview

19.03.13

Time	Tuesday, 23.4.2013		
8:00	Poster Mounting/Registration		
	Room Goethe		
9:00	Welcome Address		
9:15	Plenary: Prof. Busscher		
9:45	Plenary: Prof. Hunt		
10:15	Coffee Break partly sponsored by SawInstruments		
	Room Goethe	Room Bach	Room Schiller
	Topic E	**Topic G**	**Topic B**
11:00			
11:20			
11:40			
12:00			
12:20			
12:40	Lunch Break		
	Topic E	**Topic G/A**	**Topic B**
14:00			
14:20			
14:40			
15:00			
15:20			
15:40	Coffee Break partly sponsored by SawInstruments		
	Room Goethe	Room Bach	Room Schiller
	Topic L	**Topic A**	**Topic H**
16:10			
16:30			
16:50			
	Room Goethe		
17:10	30 Oral Poster Presentations in the lecture room		
18:30	Posterdiscussion with Snacks&Drinks in the Foyer and Exhibition-Area.		
20:30	**Partly sponsored by ICE Publishing**		

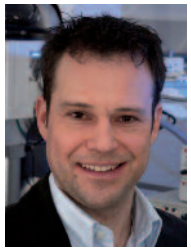
Time	Wednesday, 24.4.2013		
	Room Goethe		
8:00	Plenary: Prof. Lehr		
8:30	Plenary: Prof. Mittelmeier		
9:00	Coffee Break partly sponsored by SawInstruments		
9:30	Room Goethe	Room Bach	Room Schiller
	Topic H	**Topic D**	**Topic I**
9:40			
10:00			
10:20			
10:40			
11:00	Coffee Break partly sponsored by SawInstruments		
	Topic F	**Topic D**	**Topic I/C**
11:30			
11:50			
12:10			
12:30			
12:50			
13:10	Lunch Break		
14:10	Room Goethe	Room Bach	Room Schiller
	Topic F	**Topic K**	**Topic C**
14:15			
14:35			
14:55			
15:15			
15:35			
15:55			
16:15	Room Goethe		
16:20	**Announcement of the "Dove press" Posteraward**		
16:40	Closing Address, end of the Conference		

BioMAT
European Symposium on Biomaterials
and Related Areas

23. - 24. April 2013
Weimar, Germany

Scope

Klaus D. Jandt
Institute of Materials Science and Technology (IMT), Jena
Chairman



Thomas F. Keller
Deutsches Elektronen-Synchrotron - DESY, Hamburg
Vice-Chairman

The international symposium Euro BioMAT 2013 addresses the growing interest of science and industry in the different aspects of the creation, characterization, testing and application of biomaterials and closely related materials.
The motivation is not only the recent scientific progress and new challenges of this exciting, strongly interdisciplinary field of science and engineering but also that engineers, materials scientists, physicists, chemists, biologists in industrial R&D as well as medical professionals are increasingly facing situations where materials are challenged by high performance requirements and a complex biological environment at the same time.
The DGM and its panel of experts in biomaterials address these developments with the European symposium Euro BioMat 2013 in beautiful Weimar with its rich cultural heritage and classical sites.
At Euro BioMAT 2013, the current state of progress in the development, characterization, application and testing of biomaterials in basic science and in industry will be presented and discussed. Moreover, this symposium stimulates the scientific exchange on several topics with major challenges and urgent need for novel engineering approaches as, e.g., in the fields of antimicrobial biomaterials, bioactive and biodegradable materials, and drug and gene delivery, to name only a few.

Euro BioMAT 2013 with 200 submitted abstracts from more than 29 countries brings together fascinating science and stimulating people in a delightful setting in Weimar in the very heart of Europe.
The program committee of EURO BioMAT 2013 is pleased to announce the following plenary talks:

- **Key-players and key-factors in biomaterial-associated infections - toward changing paradigms**
  H.J. Busscher, University of Groningen and University Medical Center Groningen (Netherlands)
- **Interactions of Materials with Body Cells and Stem Cells**
  J. Hunt, University of Liverpool (United Kingdom)
- **Nanomedicine for Drug Delivery across Biological Barriers: Intestines, Skin and Lung**
  C.-M. Lehr, Saarland University, Saarbrücken (Germany)
- **Antibacterial Implant Coatings - concepts and reality**
  W. Mittelmeier, Universitätsklinikum Rostock Orthopädische Klinik und Poliklinik, Rostock (Germany)

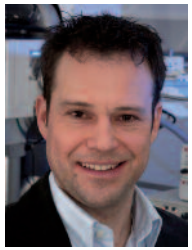
We look forward to welcoming you in Weimar on the 23th -24th of April 2013.

Klaus D. Jandt
k.jandt@uni-jena.de

Thomas F. Keller
thomas.Keller@desy.de

Program Committee

Klaus D. Jandt
Institute of Materials Science & Technology (IMT), Jena
Chairman



Thomas F. Keller
Deutsches Elektronen-Synchrotron - DESY, Hamburg
Vice-Chairman

Peter Albrecht
Boston Scientific Technologie Zentrum GmbH, München

Liga Berzina-Cimdina
Riga Technical University (LV)

Aldo R. Boccaccini
University of Erlangen-Nürnberg

Gabriela Ciapetti
Rizzoli Orthopaedic Institute, Bologna (IT)

Matthias Epple
Ruhr-University Duisburg-Essen

Bora Garipcan
Bogaziçi University, Istanbul (TR)

John Hunt
University of Liverpool (UK)

Petra Kluger
Fraunhofer Institute for Interfacial Engineering and Biotechnology, Stuttgart

João F. Mano
University of Minho, Braga (PT)

Giovanni Marletta
University of Catania (IT)

Werner E.G. Müller
Johannes Gutenberg University Mainz

Erhan Piskin
Hacettepe University, Ankara (TR)

Kurosch Rezwan
University of Bremen

Thomas Scheibel
University of Bayreuth

Matthias Schnabelrauch
Innovent e.V., Jena

Reinhard Schnettler
Universitätsklinikum Gießen und Marburg

David Watts
University of Manchester (UK)

Frank Witte
Hannover Medical School

Tuesday, 23. April 2013
Plenary Lectures

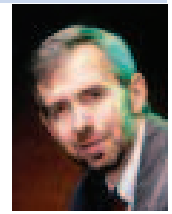
8:00 **Poster Mounting/Registration**

Room **Goethe**

9:00 **Welcome Adress**
K.D. Jandt, Institute of Materials Science and Technology (IMT), Jena

Plenary Lectures
Chair: K.D. Jandt, Chairman of the conference

9:15 **Key-players and key-factors in biomaterial-associated infections – toward changing paradigms**
H.J. Busscher, University of Groningen and University Medical Center Groningen, Groningen (The Netherlands)



New, promising antimicrobial strategies directed against biomaterial-associated infections (BAI) are caught in an insoluble risk-benefit challenge between academic and industrial interests and regulatory agencies. Ironically, legal and insurance incentives currently provide the only real stimuli toward downstream translation of antimicrobial implant and device technologies, but this is focused on certain aspects of the clinical problem, not a comprehensive solution. However, in an aging society with increasing demands from developing world populations seeking increased medical implant and device access and benefits, BAI will increase. Broader device use and expanded markets world-wide with their associated socio-economic pressures to address cost-benefits in patient care all demand expedient and appropriate solutions to address both BAI patient risks and associated costs of treatment.

The challenges in producing new infection-resistant, antimicrobial biomaterials and coatings for implants and devices have stubbornly persisted for many years. Flaws in current research and development processes that impede translation of new ideas to human use will be outlined. Moreover, a shift is proposed from mono-functional to multi-functional biomaterials surfaces that may perform better than current generations of coatings and highlights experimental advances notably involving simultaneous evaluation of tissue integration, bacterial colonization and immune responses in one and the same experiment.

New antimicrobial strategies are rapidly arising that avoid use of antibiotics, in an era where antibiotic resistant bacteria are becoming more and more troublesome. In this respect, much is to be expected from so-called contact-killing surfaces. Surface-immobilized, quaternary-ammonium-compounds for instance, can create an antimicrobial contact-killing coating, showing efficacy against strains that are otherwise resistant to dissolved quaternary-ammonium-compounds. The mechanisms by which contact-killing surfaces work are largely unknown. Here we suggest that quaternary-ammonium coatings exert lethally strong adhesion forces upon adhering bacteria to cause removal of membrane lipids, eventually leading to cell death.

Contact-killing surfaces have as a major advantage over antibiotic-release surfaces, that they do not become exhausted, although the fate of killed bacteria on a contact-killing surface and their possible influence on the killing of new bacteria is still a matter of concern. Promising alternatives are so-called on-demand release coatings, that release their antimicrobial content upon demand, as constituted eg by bacterially triggered pH changes or externally induced temperature changes.

It is finally advocated, that regulatory agencies develop new guidelines to avoid extensive, statistically impossible clinical trials before allowing these new antimicrobial strategies to the market.

Room	Goethe
	Plenary Lectures
	Chair: K.D. Jandt, Institute of Materials Science and Technology (IMT), Jena (Germany)

9:45 **Interactions of Materials with Body Cells and Stem Cells**

J. Hunt, U.K. Centre for Tissue Engineering, Clinical Engineering, The Institute of Ageing and Chronic Disease, University of Liverpool (United Kingdom)

Stem cells in theory at least provide opportunities for future medicines to repair and treat by regeneration. Their potential to become all cells and all tissues is generating both excitement and caution; as defining and controlling them for use as lifetime therapies requires validation and safety testing.

Abstract
Cell based therapies intuitively are required for future regenerative medicines, these can be delivered to the patient from external sources or derived and delivered from the patient themselves. To date stem cells have demonstrated their potential to form different tissues of the body and therefore the ability of a body to heal and repair itself. What is not known is how engage these cells in patients to direct them on demand to self treat a patient. The body undoubtedly utilises stem cells in healing spontaneously and as part of wound healing and repair. What is required to enable targeted intervention to start, direct or control these cells so they can be used routinely as medical therapies? They are required to interact with the host defence at the tissue remodelling phase or to be triggered when the host doesn't spontaneously respond to disease or damage. Chronic diseases, musculoskeletal conditions and simply ageing are all serious sub clinical and clinically manifested conditions that affect increasingly greater numbers of people. Simplistically only considering these three areas prophylactic or early interventions for which stem cells should certainly be considered would at least in theory provide for major medical therapy breakthroughs.

Prof. John Hunt, BSc, PhD, DSc. FRSC
Professor in The Institute of Ageing and Chronic Disease, Head of the Unit of Clinical Engineering and Director of the U.K. Centre for Tissue Engineering (UKCTE).

John's research focuses on developing breakthrough therapies, devices and technology to repair, replace, augment and in the future regenerate diseased and damaged tissues in humans using material interventions. Understanding the generic science to deliver interventional medical therapies requiring the use of a material (within which cells are also considered as a material). These will come from an in depth generic first principles approach to understanding and directing the patient's cellular and molecular mechanisms and responses related to the clinical outcome and efficacy of medical devices, biocompatibility, inflammation and stem cell biology. Tissue engineering processes are developed and applied, addressing the key areas of patient treatments requiring intervention and material implantation; the materials of choice being researched today also include cells and within that, expertise and intellectual property has been created relating to primary cell sourcing, controlling cell function and phenotype through defining and controlling extracellular matrix interactions, angiogenesis, inflammation and tissue regeneration. From a strong long lived generic research platform, specific applications and knowledge has been applied to and continue to be developed for musculoskeletal tissues specifically cartilage and bone, visceral and vascular tissues. Professor Hunt's research has been funded by the European Commission, BBSRC, MRC and EPSRC as well as by Industry.

10:15 **Coffee Break** partly sponsored by Saw Instruments

Room	Goethe	Bach	Schiller
	Bioinspired Materials I	**Biomaterials Applications I**	**Bio-Nano Materials I**
	Chair: W.E. Müller, Johannes Gutenberg Universität Mainz (Germany)	Chair: A.R. Boccaccini, Friedrich-Alexander-Universität Erlangen-Nürnberg (Germany)	Chair: S. Barcikowski, Universität Duisburg-Essen (Germany)
11:00	**Interface-controlled and biomimetic calcium phosphate mineralization – why not look at polycations?** A. Taubert, University of Potsdam, Golm (Germany)	**Investigation of new Ti-based metallic glasses with improved mechanical properties and corrosion resistance for implant applications** S. Abdi (Sp), S. Oswald, Leibniz Institute for Solid State and Materials Research, Dresden (Germany); A. Hynowska, UAB, Barcelona (Spain); M. Calin, L. Schultz, J. Eckert, Leibniz Institute for Solid State and Materials Research, Dresden (Germany); M.D. Baró, J. Sort, UAB, Barcelona (Spain); A. Gebert, Leibniz Institute for Solid State and Materials Research, Dresden (Germany)	**Synthesis of Highly Fluorescent Silica Nanoparticles via a Reverse Microemulsion Method** S. Shahabi (Sp), L. Treccani, K. Rezwan, University of Bremen (Germany)
11:20	**The natural inorganic polymers, biogenic polyphosphate (bio-polyP) and biogenic silica (bio-silica) as biomimetic scaffolds for bone tissue engineering: Fabrication of a morphogenetically-active polymer** W.E.G. Müller (Sp), H.C. Schröder, X. Wang, University Medical Center of the Johannes Gutenberg University, Mainz (Germany)	**High-Velocity Suspension Flame Sprayed (HVSFS) Coatings for Biomedical Applications** A. Killinger (Sp), University of Stuttgart (Germany); N. Stiegler, Bosch, Stuttgart (Germany); R. Gadow, University of Stuttgart (Germany)	**Application of additive-free gold nanoparticles for toxicity assays in reproduction biology** C. Rehbock (Sp), V. Merk, L. Gamrad, University of Duisburg-Essen (Germany); U. Taylor, W. Kues, D. Rath, Federal Research Institute of Animal Health, Neustadt (Germany); S. Barcikowski, University of Duisburg-Essen (Germany)
11:40	**Biotechnological production of engineered spider silk proteins** A. Heidebrecht (Sp), L. Eisoldt, T. Scheibel, University of Bayreuth (Germany)	**MicroCT and hard tissue histology for evaluation of bone replacement materials in a rabbit cranial defect model** G. Schneider (Sp), D. Linde, Universitätsklinikum Jena (Germany)	**Synthesis and Functionalization of Magnetic Silica-Iron Oxide Nanoparticles** C. Stötzel (Sp), A. Augustin, H.D. Kurland, J. Grabow, F. Müller, Friedrich Schiller University, Jena (Germany)

Room	Goethe	Bach	Schiller
	Bioinspired Materials I	**Biomaterials Applications I**	**Bio-Nano Materials I**
	Chair: W.E. Müller, Johannes Gutenberg Universität Mainz (Germany)	Chair: A.R. Boccaccini, Friedrich-Alexander-Universität Erlangen-Nürnberg (Germany)	Chair: S. Barcikowski, Universität Duisburg-Essen (Germany)
12:00	**Bone Surface Mimicked Structures: Synthesis and Characterization** B. Garipcan (Sp), Bogaziçi University, Istanbul (Turkey); R. Bhat, S. Zankovich, M. Beyer, E.F.-J. Rettler, U.S. Schubert, J. Bossert, K.D. Jandt, Friedrich-Schiller University Jena (Germany)	**Colonization of SiO/SiO_2-nanotubes with Enterococcus faecalis** A. Güllmar (Sp), S. Klein, S. Kranz, A. Völpel, University Hospital Jena (Germany); S. Harazim, S. Sanchez Ordonez, IFW Dresden (Germany); K.D. Jandt, Friedrich-Schiller-University, Jena (Germany); O.G. Schmidt, IFW Dresden (Germany); B.W. Sigusch, University Hospital Jena (Germany)	**Energy Behaviour for Silica Nanoparticle Encapsulated in Liposome** D. Baowan (Sp), Mahidol University, Bangkok (Thailand); A. Kraegeloh, V. Helms, Saarland University, Saarbrücken (Germany)
12:20	**Local variations of cuticular architecture in the walking leg's basis joint head of terrestrial isopods Porcellio scaber and Helleria brevicornis** S. Ruangchai (Sp), Ulm University (Germany); C. Reisecker, S. Hild, Johannes Kepler University Linz (Austria); A. Ziegler, Ulm University (Germany)	**Chip-based DNA detection in a three-dimensional hydrogel matrix** K. Weber (Sp), A. Beyer, S. Pollok, J. Popp, Friedrich-Schiller University, Jena (Germany)	**A comparison between different techniques for the evaluation of the micro/nano porosity of calcium phosphate cements** D. Pastorino (Sp), C. Canal, M.-P. Ginebra, Technical University of Catalonia (UPC), Barcelona (Spain)
12:40	**Lunch Break**		

Room	Goethe	Bach	Schiller
	Bioinspired Materials II	**Biomaterials Applications II**	**Bio-Nano Materials II**
	Chair: W.E. Müller, Johannes Gutenberg Universität Mainz (Germany)	Chair: A.R. Boccaccini, Friedrich-Alexander-Universität Erlangen-Nürnberg (Germany)	Chair: B. Garipcan, Bogaziçi University, Istanbul (Turkey)
14:00	**Spider Silk Particles – Micromechanical Properties, Swelling and Morphology** M.P. Neubauer (Sp), C. Blüm, T. Scheibel, A. Fery, University of Bayreuth (Germany)	**Biocompatibility Evaluation of Sol-Gel Hybrid Materials Using Mesenchymal Stem Cells (ADMSC), In Vitro Model** J. Krzak-Ros (Sp), Wroclaw University of Technology (Poland); A. Dziewicka, Wroclaw University of Environmental and Life Sciences (Poland); A. Donesz-Sikorska, Wroclaw University of Technology (Poland); J. Grzesiak, K. Marycz, Wroclaw University of Environmental and Life Sciences (Poland)	**The Transition from Nano-Medicine to Pico-Medicine** T.J. Webster, Northeastern University, Boston (USA)
14:20	**Biogenic Building Blocks for Functional Nanostructured Systems: Protein-Based Systems in Material Science and Nano-Biotechnology** S.M. Schiller, Albert-Ludwig-University of Freiburg (Germany)	**Magnetic microbubbles for multimodality imaging: The importance of the shell structure for low and high frequency mechanics** M. Poehlmann (Sp), University of Bayreuth (Germany); S.V.V.N. Kothapolli, D. Grishenkov, KTH Royal Institute of Technology, Stockholm (Sweden); J. Harmark, H. Hebert, KTH Royal Institute of Technology, Huddinge (Sweden); A. Phillip, R. Hoeller, M. Seuss, University of Bayreuth (Germany); S. Magheritelli, G. Paradossi, Università di Roma Tor Vergata, Rome (Italy); A. Fery, University of Bayreuth (Germany)	**The Kinesin Motor Protein as a Nanotranporter** W. Teizer (Sp), A. Sikora, J. Ramon-Azcon, D. Oliveira, K. Kim, Tohoku University, Sendai (Japan); A.L. Liao, Texas A&M University, College Station, TX (USA); M. Umetsu, I. Kumagai, T. Adschiri, Tohoku University, Sendai (Japan); W. Hwang, Texas A&M University, College Station, TX (USA)

Room	Goethe	Bach	Schiller
	Bioinspired Materials II	**Antimicrobial Biomaterials I**	**Bio-Nano Materials II**
	Chair: W.E. Müller, Johannes Gutenberg Universität Mainz (Germany)	Chair: K.D. Jandt, Institute of Materials Science & Technology (IMT), Jena (Germany)	Chair: B. Garipcan, Bogaziçi University, Istanbul (Turkey)
14:40	**Biological and biomimetic under water air-retaining surfaces: A new technique for drag-reducing ship coatings** W. Barthlott, University Bonn (Germany); T. Schimmel, Karlsruhe Institute of Technology (Germany); A. Leder, University Rostock (Germany); M. Mail (Sp), M. Mayser, University Bonn (Germany); J.-E. Melskotte, University Rostock (Germany); D. Gandyra, Karlsruhe Institute of Technology (Germany); M. Brede, University Rostock (Germany); S. Walheim, Karlsruhe Institute of Technology (Germany)	**Microbial Testing! – Up to date or …?** J. Kuever (Sp), A. Rabenstein, M. Remesch, Bremen Institute for Materials Testing (Germany)	**Ni/Bacterial cellulose magnetic nanocomposite films** V. Thiruvengadam (Sp), S. Vitta, Indian Institute of Technology Bombay (India)
15:00	**Self-Assembled and Functional Biomimetic Materials** A. Walther, RWTH Aachen University (Germany)	**A Novel Approach for the Standardized Investigation of Biofilms and Microbial Adhesion on Biomaterials** C. Lüdecke (Sp), D. Siegesmund, Friedrich Schiller University Jena (Germany); M. Roth, Leibniz Institute for Natural Product Research and Infection Biology, Jena (Germany); J. Bossert, K.D. Jandt, Friedrich Schiller University Jena (Germany)	**Processing, Properties and Characterization of Hydrothermally Synthesized Ag Dopped TiO_2 Nanotubes** C. Noberi (Sp), A.C. Zaman, C.B. Yüstündaz, F. Kaya, C. Kaya, Yildiz Technical University, Istanbul (Turkey)
15:20	**Pioneering Applications of Biomineralization-GFP Fusion Proteins** I. Weiss (Sp), E. Weber, M. Eder, L. Lemloh, INM-Leibniz Institute for New Materials, Saarbrücken (Germany)	**Recombinant human antimicrobial peptides for antimicrobial coatings** P. Brückner (Sp), M. Uting, J. Bauer, F. Meister, Thuringian Institute for Textile and Plastics Research, Rudolstadt-Schwarza (Germany)	**Structure and Chemical Characterization of Bio-Materials in 2D and 3D** M. Falke (Sp), T. Salge, B. Hansen, J. Berlin, R. Terborg, D. Goran, U. Waldschläger, Bruker Nano GmbH, Berlin (Germany); N. Musat, Helmholtz Centre for Environmental Research, Leipzig (Germany); I. Sanchez Almazo, J. Alba-Tercedor, Universidad de Granada (Germany); B. Pauwels, Bruker microCT, Kontich (Belgium); G. Wanner, LMU, Munich (Germany); C. Biot, C. Slomianny, University of Lille (France)
15:40	**Coffee Break** partly sponsored by Saw Instruments		

Room	Goethe	Bach	Schiller
	Dental Materials	**Antimicrobial Biomaterials II**	**Drug and Gene Delivery I**
	Chair: D. Watts, University of Manchester (UK)	Chair: K.D. Jandt, Institute of Materials Science & Technology (IMT), Jena (Germany)	Chair: E. Piskin, Hacettepe University, Ankara (Turkey)
16:10	**Current Prospects for In Situ Photo-Polymerization of Resin-Composite Biomaterials** D. Watts, University of Manchester (UK)	**Chitosan-Fatty Acids Derivatives as Antimicrobial Coatings on Vascular Catheters** A. Niemczyk, M. El Fray (Sp), West Pomeranian University of Technology, Szczecin (Poland)	**Drug delivery of bone therapeutic drugs from biorelated polyelectrolyte complex films** B. Torger (Sp), D. Vehlow, Leibniz-Institut für Polymerforschung Dresden e.V. (Germany); B. Woltmann, U. Hempel, Technische Universität Dresden (Germany); D. Weber, R. Schwartz-Albiez, Nationales Centrum für Tumorerkrankungen, Heidelberg (Germany); M. Müller, Leibniz-Institut für Polymerforschung Dresden e.V. (Germany)
16:30	**Role of Wettability for Dental Implant Interfaces** F. Rupp (Sp), I. Stephan, L. Scheideler, J. Geis-Gerstorfer, University Hospital Tübingen (Germany)	**LBL-coatings improve osseoinductive and antibacterial properties of titanium implants in vivo** S. Zankovych, J. Bossert, K.D. Jandt (Sp), Friedrich-Schiller-University of Jena (Germany); M. Dlefenbeck, Schön Clinic Hamburg Eilbeck (Germany); T. Mückley, Clinic Coburg (Germany); C. Schrader, J. Schmidt, Innovent e.V., Jena (Germany); A. Völpel, T. Pflaum, B.W. Sigusch, University Hospital Jena (Germany); M. Faucon, U. Finger, Königsee Implantate (Germany)	**Multifunctional hydroxyapatite/poly(lactic acid) hybrid microcapsules as local drug delivery systems** D. Loca (Sp), D. Dubnika, L. Berzina-Cimdina, Riga Technical University (Latvia)
16:50	**Soda-Lime Glass-nAg Biocide Coating on Titanium alloy and Ceramic oxide Substrates for Dental Implants** L. Esteban-Tejeda, CSIC, Llanera (Spain); B. Cabal, J. Bartolome, CSIC, Madrid (Spain); R. Torrecillas, CSIC, Llanera (Spain); J.S. Moya (Sp), CSIC, Madrid (Spain)	**A Study on the Potential of TiO_2 Anatase as an Antimicrobial Coating on Ti-Based Alloys** M. Lorenzetti (Sp), D. Biglino, S. Novak, S. Kobe, Jozef Stefan Institute, Ljubljana (Slovenia)	
17:10	**Oral Poster Presentations** (3 minutes lectures)		
18:30	**Posterdiscussion with Snacks and Drinks in the Foyer of the lecture halls**		
20:30	**Posterevening Barbeque** partly sponsored by ICE Publishing		

Room	Goethe
	Plenary Lectures
	Chair: T.F. Keller, Deutsches Elektronen-Synchrotron - DESY, Hamburg (Germany)

8:00 **Nanomedicine for Drug Delivery across Biological Barriers: Intestines, Skin and Lung**

C.-M. Lehr, Helmholtz-Institute for Pharmaceutical Research Saarland (HIPS), Saarland University, Saarbrücken (Germany)

The focus of our research over the past ten years has been on the biological barriers of the gastro-intestinal tract, the skin and the lungs. This presentation will highlight some of our recent results or data of work in progress in these three areas, either concerning the development of new in-vitro models or new drug carriers systems, for which the nano-size often has turned out to be advantageous.

Inflammatory bowel diseases, such as Morbus Crohn or Colitis Ulcerosa, are painful for the patient and moreover difficult to treat due to the increased mucus production and the occurrence of diarrhea. We could demonstrate that the anti-inflammatory drug rolipram, when delivered by nanoparticles made of biodegradable PLGA, led to a prolonged alleviation of colitis syndromes in rats and a reduction of central nervous side effects, compared to the same dose of the drug administered as an aqueous solution (Lamprecht et al., 2001). In order to study the mechanisms of this intriguing possibility of mucosal targeting, we have recently developed a 3D co-culture model of the inflamed intestinal mucosa (Leonard et al. 2010, Collnot et al. 2012) and moreover started the clinical exploration of this concept in colitis patients.

With respect to skin drug delivery, there is an interesting new hypothesis that nanoparticles may penetrate along hair shafts and to thus accumulate in hair follicles (Lademann et al. 2007). Based on this concept, we are currently exploring pollen-mimentic nanocarriers as a novel approach for needle-free vacntaion (Mittal et al., 2013).

Due to their large surface area and excellent blood supply, the lungs are an attractive alternative route for drug delivery, both for local as well as for systemic action. By escaping mucociliary or macrophage clearance, inhaled nanopharmaceuticals could perhaps be used as platform for pulmonary sustained release delivery systems. In this context, we are working on a new in vitro models as well computational approaches to optimize particle deposition oc pulmonary cell culture systems, as well as to modulate their mucociliary clearance as well as the interaction with lung surfactant proteins (see Refs by Kirch, Ruge, Schäfer et al.).

Finally, nanoplexes formed between biodegradable polymeric carriers and DNA/RNA-based drugs can be used to facilitate the transfection of cancer cells for the treatment and prevention of lung tunors. (Kumar 2004, Nafee 2007, Tätz 2009, Beisner 2010)

Claus-Michael Lehr is Professor at Saarland University, and also cofounder and head of the department "Drug Delivery" at the recently established Helmholtz Institute for Pharmaceutical Research Saarland (HIPS). HIPS belongs to the Helmholtz Centre for Infectious Diseases (www.helmholtz-hzi.de), Braunschweig, and is the first public research institute in Germany explicitly dedicated to the Pharmaceutical Sciences.

The main focus of research of Prof. Lehr's team (currently 8 senior and 30 junior researchers/PhD-students) over the past 15 years has been on the one hand exploring the biological barriers, in particular the gastro-intestinal tract, the skin and the lungs, and on the other hand developing the appropriate carriers capable of crossing these epithelial barriers and deliver the active molecule to the target.

Prof. Lehr is (co)author of more than 250 publications (h-index 39). He was the recipient of the CRS Young Investigator Award (2001), the APV Research Award 2006 for outstanding achievements in the Pharmaceutical Sciences and the biannual International Price 2008 of the Belgian Society for Pharmaceutical Sciences. In 2010, he became Fellow of the American Association of Pharmaceutical Scienists (AAPS), and in 2011 his team won the Rhineland-Palatinate and German Federal Research Awards for Alternative Methods to Animal Testing.

Since 1995, Prof. Lehr coordinates the Galenos Network of Pharmaceutical Sciences (www.galenos.net) and its Euro-PhD program. He is Co-editor of the European Journal of Pharmaceutics and Biopharmaceutics. Moreover, he is co-founder of two companies Across Barriers GmbH and PharmBioTec GmbH.

Wednesday, 24. April 2013
Plenary Lectures

Room	Goethe
	Plenary Lectures
	Chair: T.F. Keller, Deutsches Elektronen-Synchrotron - DESY, Hamburg (Germany)

8:30 **Antibacterial Implant Coatings - concepts and reality**

W. Mittelmeier, Universitätsklinikum Rostock Orthopädische Klinik und Poliklinik, Rostock (Germany)

9:00 - 9:30 **Coffee Break** partly sponsored by Saw Instruments

Room	Goethe	Bach	Schiller
	Drug and Gene Delivery II	**Biodegradable Metals**	**Hydrogels and bio based polymers I**
	Chair: E. Piskin, Hacettepe University, Ankara (Turkey)	Chair: A. Weinberg, Schüttorf (Germany)	Chair: M. Schnabelrauch, INNOVENT e.V., Jena (Germany)
09:40	**Viruses/phages: ready to enter/devour** F. Moghtader (Sp), Hacettepe University, Ankara (Turkey); N. Chanishvili, Eliava Institute of Bacteriophage and Eliava BioPreparations Ltd, Tbilisi (Georgia); E. Piskin, Hacettepe University, Ankara (Turkey)	**Properties of As-cast Mg-Ga Binary Alloys Considered as Possible Biodegradable Materials** J. Kubasek (Sp), D. Vojtech, Institute of Chemical Technology, Prague (Czech Republic)	**Fabrication of Hydrogel Scaffolds via Two-Photon Polymerization (2PP)** O. Kufelt (Sp), C. Sehring, A. El-Tamer, A. Koroleva, A. Nguyen, S. Schlie-Wolter, B.N. Chichkov, Laser Zentrum Hannover e.V. (Germany)
10:00	**Interfacial metal-based encapsulation systems formed by using sono- and electrochemical methods** P. Cherepanov, University of Bayreuth (Germany); E.V. Skorb, Max Planck Institute of Colloids and Interfaces, Potsdam (Germany); D. Andreeva (Sp), University of Bayreuth (Germany)	**In Vitro Corrosion Evaluation of Unipolar Pulsed Plasma Electrolytic Oxidation of Commercially Pure Magnesium for Biological Application** Y. Gao (Sp), A. Yerokhin, A. Matthews, University of Sheffield (United Kingdom)	**Photopolymerizable and non-gelling gelatin for the preparation of cartilage substitutes by inkjet printing** E. Hoch (Sp), G.E.M. Tovar, University of Stuttgart (Germany); K. Borchers, Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, (Germany)
10:20	**Controlling Drug Release Properties of Spider Silk Particles** E. Doblhofer (Sp), C. Blüm, T. Scheibel, University of Bayreuth (Germany)	**Biocompatibility, mechanical and degradation properties of iron based alloys processed by Metal Injection Molding** P. Imgrund (Sp), I. Grunwald, Fraunhofer Institute for Manufacturing Technology and Applied Materials Research, Bremen (Germany); P. Goncalves, Federal University of Santa Caterina, Florianopolis (Brazil); A. Reindl, Fraunhofer Institute for Manufacturing Technology and Applied Materials Research, Bremen (Germany)	**Elastically and (bio)chemically patterned poly(ethylene glycol)- based hydrogels to control cellular behavior** C. Strehmel (Sp), Z. Zhang, A. Löbus, G. de Vicente, S. Kelleher, M.C. Lensen, Technische Universität Berlin (Germany)

Room	Goethe	Bach	Schiller
	Drug and Gene Delivery II	**Biodegradable Metals**	**Hydrogels and bio based polymers I**
	Chair: E. Piskin, Hacettepe University, Ankara (Turkey)	Chair: A. Weinberg, Schüttorf (Germany)	Chair: M. Schnabelrauch, INNOVENT e.V., Jena (Germany)
10:40	**Optimization of drug delivery profiles in soft contact lenses with a liposome-based coating** P. Paradiso, R. Galante (Sp), J.L. Mata, Universidade Técnica de Lisboa, Lissabon (Portugal); R. Kratsev, University of Tuebingen (Germany); R. Colaco, B. Saramago, A.P. Serro, Universidade Técnica de Lisboa, Lissabon (Portugal)	**In Vitro Degradation Behavior of Fe/beta-TCP in Comparison with Pure Iron in PBS Solution** A. Reindl (Sp), S. Hein, P. Imgrund, Fraunhofer Institute for Manufacturing Technology and Advanced Materials, Bremen (Germany)	**Composites of poly(vinyl alcohol) (PVA) hydrogel and calcium and magnesium phosphate formed by enzymatic functionalization for bone regeneration** T. Douglas (Sp), Ghent University (Belgium); A. Piegat, West Pomeranian University of Technology, Szczecin (Poland); D. Schaubroeck, Center for Microsystems Technology (CMST), Ghent (Belgium); V. Bluznik, B. De Meyer, L. Balcaen, H. Declercq, V. Vanhaecke, R. Cornelissen, Ghent University (Belgium); M. El Fray, West Pomeranian University of Technology, Szczecin (Poland); P. Dubrel, Ghent University (Belgium)
11:00	**Coffee Break** partly sponsored by Saw Instruments		

Room	Goethe	Bach	Schiller
	Biointerfaces and Micro-Environments I	**Biodegradable Composites**	**Hydrogels and bio based polymers II**
	Chair: T.F. Keller, Deutsches Elektronen-Synchrotron - DESY, Hamburg (Germany)	Chair: A. Weinberg, Schüttorf (Germany)	Chair: M. Schnabelrauch, INNOVENT e.V., Jena (Germany)
11:30	**Structure and Dynamics of Controlled Protein Adsorption at Nanostructured UHMWPE and TiO_2 Biomaterials Surfaces** K.D. Jandt (Sp), T.F. Keller, M.M.L. Arras, J. Bossert, Friedrich-Schiller-University of Jena (Germany); M. Kastantin, D.K. Schwartz, University of Colorado Boulder, Boulder, CO (USA)	**Synthesis of beta-tricalcium phosphate fibers and their interaction with a magnesium ammonium phosphate cement** K. Zorn (Sp), D. Mitró, Friedrich-Schiller-University of Jena (Germany); E. Vorndran, U. Gbureck, University of Würzburg (Germany); F.A. Müller, Friedrich-Schiller-University of Jena (Germany)	**Amine containing poly(2-oxazoline) hydrogels for reversible DNA immobilization** M. Hartlieb (Sp), D. Pretzel, Friedrich-Schiller-University of Jena (Germany); K. Kempe, The University of Melbourne (Australia); C. Fritzsche, M. Gottschaldt, U.S. Schubert, Friedrich-Schiller-University of Jena (Germany)

Room	Goethe	Bach	Schiller
	Biointerfaces and Micro-Environments I	**Biodegradable Composites**	**Hydrogels and bio based polymers II**
	Chair: T.F. Keller, Deutsches Elektronen-Synchrotron - DESY, Hamburg (Germany)	Chair: A. Weinberg, Schüttorf (Germany)	Chair: M. Schnabelrauch, INNOVENT e.V., Jena (Germany)
11:50	**Investigation of the Initial Protein Interaction with Dental Surfaces as Basis for Biofilm Formation** C. Müller (Sp), F. Kratz, C. Rösch, N. Körber, D. Scholz, A. Lüders, University of Kaiserslautern (Germany); M. Wilhelmi, M. Wahl, M. Kopnarski, Institute of Surface and Thin Film Analysis (IFOS) GmbH, Kaiserslautern (Germany); W. Hoth-Hannig, M. Hannig, University Hospital of the Saarland, Homburg (Germany); J. Wald, C. Ziegler, University of Kaiserslautern (Germany)	**Biobased composites - new potentials by continuous fibre reinforcement** M. Reinhardt (Sp), J. Kaufmann, S. Buschbeck, R. Rinberg, Chemnitz University of Technology (Germany)	**Drug release from pHEMA based hydrogels: a contribution for the development of daily disposable therapeutic contact lenses** P. Paradiso (Sp), Instituto Superior Técnico, Lissabon (Portugal); R. Galante, Instituto Superior Técnico, Lisbon (Portugal); M.G. Moutinho, A.I. Fernandes, Instituto Superior de Ciências da Saúde Egas Moniz, Caparica (Portugal); R. Colaço, B. Saramago, A.P. Serro, Instituto Superior Técnico, Lisbon (Portugal)
12:10	**Competitive protein adsorption from complex blood serum** N. Giamblanco (Sp), G. Marletta, University of Catania (Italy)	**Development of a PLGA fiber reinforced brushite cement for minimal invasive operation techniques** S. Maenz (Sp), Friedrich Schiller University of Jena (Germany); M. Mühlstädt, Friedrich Schiller University of Jena (Germany); A. Böhm, Thuringian Institute of Textile and Plastics Research, Rudolstadt (Germany); R.W. Kinne, University Hospital Jena (Germany); K.D. Jandt, J. Bossert, Friedrich Schiller University of Jena (Germany)	**Autologous Fibrin Gel Scaffolds - Comparison of Different Fibrinogen Isolation Methods** M. Dietrich, J. Heselhaus, S. Weinandy (Sp), RWTH Aachen (Germany); P. Mela, J. Wozniak, B. Tschöke, T. Schmitz-Rode, S. Jockenhoevel, RWTH Aachen University (Germany)

Room	Goethe	Bach	Schiller
	Biointerfaces and Micro-Environments I	**Biodegradable Composites**	**Bioactive Materials I**
	Chair: T.F. Keller, Deutsches Elektronen-Synchrotron - DESY, Hamburg (Germany)	Chair: A. Weinberg, Schüttorf (Germany)	Chair: G. Ciapetti, Instituto Ortopedico Rizzoli, Bologna (Italy)
12:30	**Nucleation of Protein Networks at Heterogeneous Surface Nanostructures** T.F. Keller (Sp), H. Marx, R. Schulze, S. Schröder, K.D. Jandt, Friedrich Schiller University of Jena (Germany)	**Immunological response to bone injuries and imlpantation of a biodegradable polymer** E. Martinelli (Sp), K. Angerpointner, K. Pichler, S. Fischerauer, T. Kraus, P. Ferlic, H.-P. Brezinsek, S. Zötsch, A.-M. Weinberg, Medical University Graz (Austria)	**Fabrication of Highly Bioactive Alumina Surfaces via an Enzyme-based Biomimetic Approach** A. Aminian (Sp), L. Treccani, K. Rezwan, University of Bremen (Germany)
12:50	**Surface functionalization for technical applications using bacterial S-layers** K. Pollmann (Sp), T. Günther, M. Suhr, Helmholtz Zentrum Dresden Rossendorf (Germany); U. Weinert, Helmholtz Institute Freiberg for Resource Technology, Freiberg (Germany); S. Kutschke, F. Lehmann, J. Raff, Helmholtz Zentrum Dresden Rossendorf (Germany)	**Resorbable beta-TCP scaffolds with an aligned and open porosity fabricated via ice-templating** S. Flauder (Sp), F.A. Müller, Friedrich-Schiller-University of Jena (Germany); U. Gbureck, University of Würzburg (Germany)	**Influence of Dissolution Medium on Apatite Formation of Bioactive Glasses** F.A. Shah, Göteborgs Universitet (Sweden); K. Hing, Queen Mary University, London (UK); D. Brauer (Sp), Friedrich-Schiller-University of Jena (Germany)
13:10	**Lunch Break**		

Room	Goethe	Bach	Schiller
	Biointerfaces and Micro-Environments II	**Tissue engineering / regenerative medicine**	**Bioactive Materials II**
	Chair: K. Rezwan, Universität Bremen (Germany)	Chair: R. Schnettler, Universitäts-klinikum Gießen und Marburg (Germany)	Chair: G. Ciapetti, Instituto Orto-pedico Rizzoli, Bologna (Italy)
14:15	**Design of Surfaces with Mechanical Nanoheterogeneities for a Better Control of Cell-Material Interactions** S. Degand (Sp), UCLouvain, Louvain-la-Neuve (Belgium); M. Riehle, University of Glasgow (UK); C. Dupont-Gillain, UC Louvain, Louvain-la-Neuve (Belgium)	**Fabrication of Alginate-Gelatin Cross-linked Microcapsules and Evaluation of the Microstructure and Biocompability for Bone Tissue Regeneration** B. Sarker (Sp), D. Heusinger, University of Erlangen-Nuremberg (Germany); S. Rath, University Hospital of Erlangen (Germany); R. Detsch, A.R. Boccaccini, University of Erlangen-Nuremberg (Germany)	**Polyelectrolypolyelectrolyte films modulate cell behaviour by affecting early cell adhesionte films modulate cell behaviour by affecting early cell adhesion** G. Ciapetti (Sp), C. Fotia, Rizzoli Orthopaedic Institute, Bologna (Italy); G. Messina, Università di Bologna (Italy); N. Baldini, Rizzoli Orthopaedic Institute, Bologna (Italy); G. Marletta, Università di Bologna (Italy)
14:35	**Hydrogel Force Probes for Novel Drug Screening Applications and Cell-Matrix Interaction Studies** S. Schmidt (Sp), D. Pussack, L. Hartmann, Max Planck Institute of Colloids and Interfaces, Potsdam-Golm (Germany)	**Adipose derived stem cells cultured on porous, amino-functionalized polylactide-composite scaffolds** C. Kleinhans (Sp), University of Stuttgart (Germany); I. Satler, L. Schmohl, J. Barz, T. Schiestel, G. Tovar, H. Walles, P.J. Kluger, Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, Stuttgart (Germany)	**Nanostructured and Hydroxyapetite Deposited Titanium Implants** H.T. Sirin, I. Vargel, T. Kutsal, P. Korkusuz, E. Piskin (Sp), Hacettepe University, Ankara (Turkey)
14:55	**In-situ-ATR-FTIR characterization and life science applications of thin biorelated polymer films** M. Müller (Sp), B. Torger, Leibniz Institute of Polymer Research Dresden (Germany); E. Bittrich, FILK Freiberg (Germany); P. Uhlmann, K.J. Eichhorn, M. Stamm, Leibniz Institute of Polymer Research Dresden (Germany)	**Co-culture of Fibroblasts and Endothelial Cells Lead to Controlled Tubular-like Structure Formation Adjacent to Biofunctionalised Microfibres** S. Weinandy (Sp), R. Loesel, RWTH Aachen (Germany); R.E. Unger, Johannes Gutenberg University of Mainz (Germany); K. Douma, University of Maastricht (Netherlands); C.J. Kirkpatrick, Johannes Gutenberg University of Mainz (Germany); M. van Zandvoort, University of Maastricht (Netherlands); B. Hermanns-Sachweh, University Hospital Aachen (Germany); S. Jockenhoevel, D. Klee, RWTH Aachen (Germany)	**Biomechanical Evaluation of the Osseointegration of Biologically Coated Open-Cell Titanium Implants** T. Guillen, A. Ohrndorf (Sp), H.-J. Christ, University of Siegen (Germany)

Wednesday, 24. April 2013
Lectures

Room	Goethe	Bach	Schiller
	Biointerfaces and Micro-Environments II	**Tissue engineering / regenerative medicine**	**Bioactive Materials II**
	Chair: K. Rezwan, Universität Bremen (Germany)	Chair: R. Schnettler, Universitäts-klinikum Gießen und Marburg (Germany)	Chair: G. Ciapetti, Instituto Orto-pedico Rizzoli, Bologna (Italy)
15:15	**Deciphering Biophysical Stem Cell – Material Interactions** C. Lee-Thedieck (Sp), Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen (Germany); E. Altrock, A. Muth, Max Planck Institute for Intelligent Systems, Stuttgart (Germany); L. Rödling, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen (Germany); G. Klein, University of Tuebingen (Germany); P. Spatz, Max Planck Institute for Intelligent Systems, Stuttgart (Germany)	**PulmoStent - Development of a stent structure for the treatment of lung cancer** K. Kleinsteinberg (Sp), V. Gesché, F. Schreiber, T. Gries, S. Jockenhoevel, RWTH Aachen University (Germany)	**Manufacturing and characterization of innovative glass coatings on ceramic substrates for prosthetic applications** G. Örlygsson (Sp), Innovation Center Iceland, Reykjavik (Iceland); F. Baino, E. Verné, C. Vitale-Brovarone, Politecnico di Torino (Italy)
15:35	**Myogenic Differentiation on Surfaces Presenting a Photoactivatable Cyclic RGD Peptide** S. Weis (Sp), A. del Campo, Max Planck Institute for Polymer Research, Mainz (Germany); A.J. Garcia, Georgia Institute of Technology, Atlanta (United States of America)	**Biomimetic Bone Scaffold: Increased Expression of BMP-2 and of Osteoprotegerin in SaOS-2 Cells Grown Onto Silica-Biologized 3D Printed Scaffolds** X. Wang (Sp), H.C. Schröder, W.E.G. Müller, University Medical Center of the Johannes Gutenberg University, Mainz (Germany)	**Bioactive Glasses as Reactive Precursors in the Formation of Novel Calcium Phosphate Cements** N.W. Kent (Sp), R. Hill, N. Karpukhina, Queen Mary University of London (United Kingdom)
15:55	**Correlation between laser-generated surface topographies and guided cell responses** S. Schlie-Wolter (Sp), E. Fadeeva, A. Deiwick, B. Chichkov, Laser Zentrum Hannover e.V. (Germany)	**Effect of gelatin-hydroxyapatite cryogels with/without bone morphogenetic protein-2 and transforming growth factor beta-1 on critical sized calvarial defect in rat model** I. Inci, S. Odabas, Hacettepe University, Ankara (Turkey); E. Guzel, Istanbul University (Turkey); P. Korkusuz, Hacettepe University, Ankara (Turkey); T. Cavusoglu, I. Vargel, Kirikkale University (Turkey); H. Kirseborn, Lund University (Sweden); H.H. Celik, F. Demirkazik, Hacettepe University, Ankara (Turkey); B. Mattiasson, Lund University (Sweden); E. Piskin (Sp), Hacettepe University, Ankara (Turkey)	**Endothelialization and biocompatibility of polymer-based nanocomposites** S. Barcikowski (Sp), P. Wagener, University of Duisburg-Essen (Germany); A. Schwenke, Laser Zentrum Hannover (Germany); C. Hess, Hannover Medical School (Germany); L. Sajti, Laser Zentrum Hannover (Germany); A. Haverich, Hannover Medical School (Germany)

Wednesday, 24. April 2013
Closing Address

Room	Goethe
	Posteraward and Closing Address
	Chair: K.D. Jandt, Institute of Materials Science and Technology (IMT), Jena (Germany)

16:20 **Announcement of the Posteraward and Closing Address**
K.D. Jandt, Institute of Materials Science and Technology (IMT), Jena (Germany)

sponsored by

16:40 **End of the Conference**

Tuesday 23. April through Wednesday 24. April
Poster

Antimicrobial Biomaterials

A-73 **Preparation and characterization of HPMA-4-VP sponge-like materials**
G. Balamut, Technical University, Istanbul (Turkey); I.A. Isoglu (Sp), Abdullah Gul University, Kayseri (Turkey)

A-134 **Development of Non-Wovens with Antimicrobial and Hemostatic Properties based on Natural Polysaccharides**
M. Gladitz (Sp), P. Brückner, K. Schwikal, J. Bauer, F. Meister, Thuringian Institute of Textile and Plastics Research, Rudolstadt-Schwarza (Germany)

A-143 **Surface Coating of Sensor Materials using Poly(2-ethyl-2-oxazoline) and Poly(ethylene glycol) Based Polymers for the Prevention of Biofilm Formation**
L. Tauhardt (Sp), D. Pretzel, M. Gottschaldt, S. Ulrich, Friedrich-Schiller-University of Jena (Germany)

A-146 Oral Poster **Bacterial Adhesion on Nanorough Titanium Thin Films**
C. Lüdecke (Sp), D. Siegesmund, Friedrich Schiller University Jena (Germany); M. Roth, Leibniz Institute for Natural Product Research and Infection Biology, Jena (Germany); J. Bossert, K.D. Jandt, Friedrich Schiller University Jena (Germany)

A-177 Oral Poster **Characterization of Fabricated Cost Effective Antibacterial Nanofibers Based on Hybrid Materials by Electrospinning**
M.A.K. Azad (Sp), University of Bonn (Germany); A. Hinnemann, K. Koch, R. Lucassen, N.J. Shirtcliffe, A. Fahmi, Hochschule Rhein-Waal, Kleve (Germany)

A-202 **Exploring the antifouling properties of Collembola cuticle by structural and chemical analyses**
J. Nickerl (Sp), R. Helbig, R. Hensel, Leibniz Institute of Polymer Research Dresden (Germany); R. Neinhuis, TU Dresden (Germany); C. Werner, Leibniz Institute of Polymer Research Dresden (Germany)

Bio-Nano Materials

B-32 Oral Poster **Isolation and Characterization of Cellulose nanowhiskers from isora plant wastes: a potential reinforcement for Polymer Composites**
L. Mathew (Sp), Newman College Thodupuzha, Thodupuzha, Kerala (India); S. Thomas, M.G. University, Kottayam, Kerala (India); C. Jose, Newman College Thodupuzha, Thodupuzha, Kerala (India)

B-43 **Precursor for Calcium Hydroxyapatite: Thermal Analysis of Xerogel Prepared with DCTA as Complexing Agent**
Z. Stankeviciute (Sp), Vilnius University (Lithuania); K. Tõnsuaadu, I. Bogdanoviciene, Tallinn University of Technology (Estonia); A. Kareiva, Vilnius University (Lithuania)

B-47 Oral Poster **Mechanical and Rheological Studies of Isora nano fiber Reinforced Polyester Composites**
C. Jose (Sp), L. Matthew, Newman College Thodupuzha, Thodupuzha, Kerala (India); S. Thomas, M.G. University, Kottayam, Kerala (India)

B-64 **Biodegradable Biopolymer/Calcium Phosphate Nanocomposites**
M. Sokolova, J. Locs (Sp), L. Berzina-Cimdina, Riga Technical University (Latvia)

Bio-Nano Materials (continued)

B-204 **Design of gold nano-particle-peptide conjugates with optimized ligand loads and stabilities for in vitro bioapplications**
L. Gamrad (Sp), C. Rehbock, University of Duisburg-Essen (Germany); J. Krawinkel, B. Tumursukh, A. Heisterkamp, Friedrich-Schiller-University of Jena (Germany); S. Barcikowski, University of Duisburg-Essen (Germany)

B-205 **The Synthesis, phase transfer and surface functionalization of metal nanoparticles for biomedical applications**
Q. Zhang (Sp), University of Marburg (Germany); P. del Pino, University of Zaragoza (Spain); W. Parak, University of Marburg (Germany)

B-209 **Fabrication of nanoparticle-loaded hybrid microgels as bioactive ion release system for dermal application**
N. Million, University of Duisburg-Essen, Essen (Germany); S. Barcikowski, University of Duisburg-Essen, Essen (Germany)

B-210 **Electrophoretic Deposition of Ligand-Free Metal Nanoparticles on Electrode Surfaces in Liquid Flow**
S. Koenen, University of Duisburg-Essen, Essen (Germany); S. Barcikowski, University of Duisburg-Essen, Essen (Germany)

Bioactive Materials

C-31 Oral Poster **Quantitative in-situ XRD investigation of alpha-TCP powders with different amount of amorphous content during hydration**
K. Hurle (Sp), J. Neubauer, F. Götz-Neunhoeffer, Friedrich-Alexander-Universität Erlangen-Nürnberg (Germany)

C-71 Oral Poster **Effects of alkali substitution in Bioglass® 45S5**
M. Tylkowski (Sp), D. Brauer, Friedrich-Schiller-University of Jena (Germany)

C-130 Oral Poster **The Effect of Phosphate on Bioactivity of Melt-Derived Silicate Glasses**
S. Kühn (Sp), N.W. Kent, R. Hill, N. Karpukhina, Queen Mary University of London (United Kingdom)

C-158 **Selenate Doped Hydroxyapatite Coatings on Ti_6Al_4V Alloy by Biomimetic Method**
B. Yilmaz, Z. Evis (Sp), Middle East Technical University, Ankara (Turkey)

C-159 **Periodic Mesoporous Organosilica (PMOs) Coatings for Biomedical Applications**
N. Wendt (Sp), N. Ehlert, Leibniz Universität Hannover (Germany); K. Kurselis, A. Deiwick, B. Chichkov, Laser Zenrum Hannover (Germany); P. Behrens, Leibniz Universität Hannover (Germany)

C-188 **Characterisation of Ca-,P-containing coatings produced on Ti implants by plasma electrolytic oxidation**
W.K. Yeung (Sp), G. Reilly, A. Yerokhin, University of Sheffield (United Kingdom)

C-189 **Deposition of Ca-,P-containing coatings on Ti implants using pulsed bipolar plasma electrolytic oxidation**
A.L. Yerokhin (Sp), A. Matthews, University of Sheffield (United Kingdom); E.V. Parfenov, Ufa State Aviation Technical University (Russian Federation)

Tuesday 23. April through Wednesday 24. April
Poster

Biodegradable Materials

D-6 Oral Poster **Metal ceramic composites as degradable implant and bone replacement materials**
S. Hein (Sp), P. Imgrund, Fraunhofer IFAM, Bremen (Germany)

D-18 **Preparation of stimuli responsive polycaprolactone membranes of controllable porous morphology via combined atom transfer radical polymerization, ring-opening polymerization and thiol–yne click chemistry**
T. Cai (Sp), K.G. Neoh, E.T. Kang, National University of Singapore (Singapore)

D-83 Oral Poster **Properties of porous magnesium prepared by a powder metallurgy technique**
J. Capek (Sp), D. Vojtech, Institute of Chemical Technology, Prague (Czech Republic)

D-95 Oral Poster **Biodegradable Nanoparticles as New Release Carrier for Medical Applications**
N. Poth, Technische Universität Braunschweig (Germany); V. Seiffart, G. Gross, Helmholtz Center for Infection Research, Braunschweig (Germany); H. Windhagen, Medical School Hannover (Germany); H. Menzel, W. Dempwolf (Sp), Technische Universität Braunschweig (Germany)

D-156 Oral Poster **Evaluation of Degradation and Biocompatibility of an Intramedullary Nailing System made of the Magnesium Alloy LAE442 in Sheep**
C. Rössig (Sp), N. Angrisani, University of Veterinary Medicine Hannover, Foundation (Germany); P. Helmecke, J.-M. Seitz, S. Besdo, Leibniz Universität Hannover (Germany); H. Waizy, Hannover Medical School (Germany); J. Reifenrath, University of Veterinary Medicine Hannover, Foundation (Germany)

D-208 **In-situ high resolution AFM studies of MgO-dissolution processes in aqueous electrolytes**
I. Giner, Paderborn University, Paderborn (Germany); G. Grundmeier, Paderborn University, Paderborn (Germany)

Bioinspired Materials

E-22 Oral Poster **Polymer membranes with omniphobic wetting characteristics inspired by the skin morphology of springtails**
R. Hensel (Sp), Leibniz Institute of Polymer Research Dresden (Germany); A. Finn, TU Dresden (Germany); R. Helbig, H.G. Braun, Leibniz Institute of Polymer Research Dresden (Germany); C. Neinhuis, W.-J. Fischer, TU Dresden (Germany); C. Werner, Leibniz Institute of Polymer Research Dresden (Germany)

E-53 **Production and characterization of fibers made of recombinant spider silk proteins**
G. Lang (Sp), T. Scheibel, University of Bayreuth (Germany)

E-75 Oral Poster **Be inspired by isopod cuticle: Unusual cuticle organisation and mechanical properties within the incisive edge of the mandibles in two Crustacean species**
J. Huber (Sp), A. Ziegler, Ulm University (Germany); H.-O. Fabritius, Max Planck Institute for Iron Research, Düsseldorf (Germany); E. Griesshaber-Schmahl, LMU Munich (Germany)

Bioinspired Materials (continued)

E-104 Oral Poster
Characterizing spider silk protein particles: Direct force measurements and electrophoretic mobility
N. Helfricht (Sp), M. Klug, A. Mark, C. Blüm, T. Scheibel, G. Papastavrou, University of Bayreuth (Germany)

E-206
Processing and Properties of Bio-Ceramics Based on Oxides Nanopowders
S. Kulkov, S. Buyakova, E. Kalatur, Inst. of Strength Physics and Material Sciences RAS and Tomsk State University, Tomsk (Russian Federation)

Biointerfaces & Micro-Environments

F-7 Oral Poster
The combination of plasma chemical oxidized (PCO) and plasma chemical polymerized allylamine (PPAAm) coated surfaces for the improvement of cell adherent properties
J. Schmidt (Sp), C. Schrader, Innovent e.V. Technology Development Jena (Germany); B. Finke, Leibniz-Institute for Plasma Science and Technology e.V. (INP), Greifswald (Germany); H. Rebl, J.B. Nebe, University Medicine Rostock (Germany)

F-15
Quantitative Characterisation of Biomaterials and their Interaction with Living Cells by AFM
T. Müller, C. Pettersson (Sp), T. Neumann, JPK Instruments AG, Berlin (Germany)

F-54
Generation of fluorocarbon plasma polymers to prevent cellular adhesion on temporary implant materials in vitro
H. Rebl (Sp), University Medical Center Rostock (Germany); H. Testrich, J. Meichsner, University of Greifswald (Germany); M. Karmazyna, J. Nebe, University Medical Center Rostock (Germany)

F-96
X-Ray Scattering as a tool to investigate thin biofilms
I. Kiesel (Sp), M. Paulus, J. Nase, S. Tiemeyer, C. Sternemann, M. Tolan, TU Dortmund University (Germany)

F-103
Smart Coatings for Controlling of Cell-Surface Interaction
I. Dewald (Sp), J. Gensel, O. Isakin, J. Erath, E. Betthausen, University of Bayreuth (Germany); S. Schmidt, Fraunhofer Institute for Biomedical Engineering, Potsdam (Germany); T. Hellweg, Bielefeld University (Germany); C. Duschl, Fraunhofer Institute for Biomedical Engineering, Potsdam (Germany); H. Möhwald, Max Planck Institute of Colloids and Interfaces, Potsdam (Germany); A.H.E. Müller, A. Fery, University of Bayreuth (Germany)

F-123 Oral Poster
Chemically Modified Heparin Derivatives for Covalent Multilayer Deposition
V. Schönhaar, Stuttgart University (Germany); M. Dettling, A. Wenz, A. Weber, K. Borchers (Sp), Fraunhofer Institute for Interfacial Engineering and Biotechnology, Stuttgart (Germany)

F-154 Oral Poster
Evaluation of polymer-biocompatibility using an Inkjet-printed microarray platform
D. Pretzel (Sp), K. Schmidt, M. Gottschaldt, U.S. Schubert, Friedrich Schiller University of Jena (Germany)

Biointerfaces & Micro-Environments (continued)

F-166
Photoactivatable wound healing: a new tool for advanced migration studies
M.J. Salierno, L. Garcia-Fernandez (Sp), Max Planck Institute for Polymer Research, Mainz (Germany); A.J. Garcia, Georgia Institute of Technology, Atlanta, GA (United States of America); A. del Campo, Max Planck Institute for Polymer Research, Mainz (Germany)

F-169 Oral Poster
In vitro interaction studies of neuroblasoma cells on the influence of electronic devices surface modifications
G. Reuter (Sp), M. Steffens, Hannover Medical School (Germany); U. Zywietz, B. Chikow, Leibniz Universität Hannover (Germany); T. Lenarz, Hannover Medical School (Germany)

F-185
Artificial hydroxyapatite pellets – mimicking hard tissues with simple surfaces
C. Zeitz (Sp), S. Grandthyll, Saarland University, Saarbrücken (Germany); D. Kahraman, KIT, Karlsruhe (Germany); P. Loskill, J. Schmauch, N. Thewes, F. Müller, K. Jacobs, Saarland University, Saarbrücken (Germany)

F-213
A Non-Contact Method of Sectioning Cardiovascular Arteries Containing Metallic Stents for Biointerface Analysis
H. Richter, ROWIAK Gmbh, Hannover, Germany; J. Ratliff, Ratliff Histology Consultants, LLC, Franklin, Tennessee (United States of America)

Biomaterials Applications

G-41
Development of new beta-Ti alloys for hard tissue replacement
A. Helth (Sp), S. Pilz, IFW Dresden (Germany); R. Medda, Ruprecht-Karls-Universität Heidelberg (Germany); A. Gebert, IFW Dresden (Germany); A. Cavalcanti-Adam, Ruprecht-Karls-Universität Heidelberg (Germany); M. Calin, IFW Dresden (Germany); , TU Dresden (Germany); J. Eckert, IFW Dresden (Germany)

G-46 Oral Poster
External Quantum Efficiency of Photocurrent Response of Biophotonic Devices Using Retinoids
S. Mitachi (Sp), Y. Tuchida, K. Nishimura, Tokyo University of Technology (Japan)

G-68
Low Young s modulus porous Ti-Nb alloy for hard tissue replacement
K. Zhuravleva (Sp), S. Scudino, M. Calin, A. Gebert, L. Schultz, J. Eckert, Leibniz Institute for Solid State and Materials Research Dresden (Germany)

G-85 Oral Poster
The role of surface energy in Chromonic Liquid Crystals alignment
C.M. Tone (Sp), M.P. De Santo, M.G. Buonomenna, G. Golemme, F. Ciuchi, University of Calabria, Arcavacata di Rende-Cosenza (Italy)

G-91
The influence of the non-neuronal cholinergic system and new titanium alloys on human multipotent stroma cells in osteoporotic bone
V. Kauschke (Sp), O. Dakischew, Justus-Liebig-University, Gießen (Germany); A. Helth, A. Gebert, Leibniz Institute for Solid State and Materials Research Dresden (Germany); C. Heiss, V. Alt, G. Schlewitz, University Hospital of Giessen-Marburg (Germany); I. Panzer, O. Kilian, Justus-Liebig-University, Gießen (Germany); R. Schnettler, University Hospital of Giessen-Marburg (Germany); K.S. Lips, Justus-Liebig-University, Gießen (Germany)

G-148 Oral Poster
Ab Initio Study of Single-crystalline and Polycrystalline Elastic Properties of Mg-substituted Calcite Crystals
L.-F. Zhu, M. Friak (Sp), L. Lymperakis, P. Hemzalova, H.-O. Fabritius, Max Planck Institute for Iron Research GmbH, Düsseldorf (Germany); A. Ziegler, University of Ulm (Germany); S. Nikolov, Bulgarian Academy of Sciences, Sofia (Bulgaria); D. Raabe, J. Neugebauer, Max Planck Institute for Iron Research GmbH, Düsseldorf (Germany)

Biomaterials Applications (continued)

G-153 **Biofunctionalization and endothelialization of stereolithography-manufactured biocompatible vascular grafts**
P. Kluger (Sp), Fraunhofer Institute for Interfacial Engineering and Biotechnology, Stuttgart (Germany); B. Huber, University of Stuttgart (Germany); W. Meyer, Fraunhofer Institute for Applied Polymer Research IAP, Potsdam (Germany); S. Engelhardt, RWTH Aachen (Germany); E. Novosel, A. Wenz, H. Walles, T. Hirth, K. Borchers, Fraunhofer Institute for Interfacial Engineering and Biotechnology, Stuttgart (Germany)

G-157 **Investigating cell-material interactions for application in cochlear implants**
P. Aliuos (Sp), Hannover Medical School (Germany); E. Fadeeva, Laserzentrum Hannover (Germany); A. Sen, C. Hadler, Technische Universität Braunschweig (Germany); M. Bader, Helmholtz centre for infection research, Braunschweig (Germany); A. Warnecke, K. Wissel, Hannover Medical School (Germany); W. Dempwolf, Technische Universität Braunschweig (Germany); U. Reich, Charité-Universitätsmedizin, Berlin (Germany); P. Mueller, Helmholtz centre for infection research, Braunschweig (Germany); H. Menzel, Technische Universität Braunschweig (Germany); B. Chichkov, Laserzentrum Hannover (Germany); T. Lenarz, G. Reuter, Hannover Medical School (Germany)

G-164 **Influence of Titanium/ Triceram and Zirconia/ Triceram veneering thickness on biaxial bond strength**
T. Al-Zahrani (Sp), T. Gschwandtner, S. Spintzyk, C. Schille, J. Geis-Gerstorfer, University Hospital of Tuebingen (Germany)

G-175 **Osteogenic differentiation of human adipose stem cells in magnesium or/and zinc doped Tricalcium Phosphate Ceramics**
K.C. Kai, J. Marchi (Sp), Universidade Federal do ABC, Santo André (Brazil); L.S. Ferreira, Universidade de Sao Paulo (Brazil); A.M.S. Pinho, L.P. Eca, Instituto de Pesquisas em Celulas Tronco, Sao Paulo (Brazil); M.M. Martins, Universidade de Sao Paulo (Brazil)

G-181 **Micro-thin multilayered ceramic constructs produced by EPD**
F. Kochbeck, C. Mochales (Sp), C. Fleckenstein, Charité Universitätsmedizin Berlin (Germany); R. Zehbe, C. Fleck, Technische Universität Berlin (Germany); W.-D. Müller, Charité Universitätsmedizin Berlin (Germany)

G-183 **Validation of tissue adhesives in mucosal areas**
G. Schneider (Sp), S. Voigt, K. Otto, Universitätsklinikum Jena (Germany)

G-214 **Comparative Study of two Methods: X-Ray and Ultrasonic for Investigation of the Spongy Bone**
H. Daoui (Sp), Univesity of Science and Technology, Tizi Ouzou (Algeria); F. Boubenider, Univesity of Science and Technology, Houari Boumediene (Algeria); H. Djoudi, C. Haouichat, Hospital of Douera (Algeria)

Tuesday 23. April through Wednesday 24. April
Poster

Drug and Gene Delivery

H-17 **Recombinant spider silk particles as drug delivery vehicles**
M.B. Elsner (Sp), C. Blüm, S. Wohlrab, University of Bayreuth (Germany); U. Schubert, Max Planck Institute, Dresden (Germany); A. Lammel, K. Spiess, University of Bayreuth (Germany); M. Zerial, Max Planck Institute, Dresden (Germany); T. Scheibel, University of Bayreuth (Germany)

H-70 **Preparation of HPMA-4-VP amphiphilic carriers by RAFT**
Z. Özdemir, M. Topuzo, Technical University, Istanbul (Turkey); S. Dinçer (Sp), Abdullah Gul University, Kayseri (Turkey)

H-129 Oral Poster **Towards a New Calcium Phosphate Bone Cement Containing an Antibiotic**
M. Negro, Instituto Superior Tcnico, Lisbon (Portugal); S. Prata, L. Pinto, Ceramed, Lisbon (Portugal); A. Fernandes, V. Andr, Instituto Superior Tcnico, Lisbon (Portugal); M.G. Moutinho, Instituto Superior de Cincias da Sade Egas Moniz, Monte de Caparica (Portugal); R. Colao, M.A. Rodrigues, Instituto Superior Tcnico, Lisbon (Portugal); A.P. Serro (Sp), Instituto Superior Tcnico, Lisbon (Portugal)

H-141 **Innovative Fiber Based Drug Delivery System**
K. Feher, K. Kleinsteinberg (Sp), H. Leonards, E. Bremus-Köbberling, D. Schmitz, A. Pich, T. Gries, S. Jockenhövel, RWTH Aachen University (Germany)

H-167 **Drug Delivery from Medical Devices – Development of an in vitro Bone Model**
G.J. Rau (Sp), H. Steckel, University of Kiel (Germany); I. Weyers, University of Luebeck (Germany); A.P. Schulz, University Hospital of Schleswig-Holstein, Luebeck (Germany)

H-211 **Controlled Release of Hydrophobic and Hydrophilic Cargos via Polyelectrolyte Multilayer Microcapsules**
X. Yu, S. Carregal-Romero, M. Ochs, A. Ott, W.J. Parak, Fachbereich Physik und Wissenschaftliches Zentrum für Materialwissenschaften (WZMW), Philipps Universität Marburg (Germany)

H-212 **Synthesis of amino-modified calcium phosphate nanoparticles for gene delivery applications**
B. Mostaghaci, Dept. of Drug Delivery (DDEL), Helmholtz-Institute for Pharmaceutical Research Saarland (HIPS), Helmholtz Centre for Infectious Research (HZI), Saarland University, Saarbrücken (Germany); B. Loretz, Dept. of Drug Delivery (DDEL), Helmholtz-Institute for Pharmaceutical Research Saarland (HIPS), Helmholtz Centre for Infectious Research (HZI), Saarland University, Saarbrücken (Germany); G. Kickelbick, Saarland University, Inorganic Solid State Chemistry, Saarbrücken (Germany); C.M. Lehr, Dept. of Drug Delivery (DDEL), Helmholtz-Institute for Pharmaceutical Research Saarland (HIPS), Helmholtz Centre for Infectious Research (HZI), Saarland University, Saarbrücken (Germany)

Hydrogels and Bio-based Polymers

I-16 **Hydrogels made of the recombinant spider silk protein eADF4(C16) for cell culture studies**
K. Schacht (Sp), A. Leal-Egaña, C. Mauerer, J. Wickinghoff, S. Geimer, T. Scheibel, University of Bayreuth (Germany)

I-111 **Catalitic Activity of Copper Ions in the Amyloid Fibrillation of Beta-Lactoglobulin**
C. Labate (Sp), B. Zappone, M.P. De Santo, B. Rizzuti, R. Guzzi, University of Calabria, Rende (Italy)

I-119 Oral Poster **Influence of cholesterol and albumin on biotribological properties of hydrogels for contact lenses**
D. Silva (Sp), T.G. Nunes, R. Colaço, Instituto Superior Técnico, Lisbon (Portugal); A.P. Serro, Instituto Superior de Ciências da Saúde Egas Moniz, Monte de Caparica (Portugal)

I-155 **Poly(ethylene imine)-based hydrogels for binding of DNA**
C. Englert (Sp), L. Tauhardt, D. Pretzel, K. Kempe, M. Gottschaldt, U.S. Schubert, Friedrich Schiller University of Jena (Germany)

I-190 **Poloxamer-calcium phosphate ceramics hydrogels as delivery system for the local anesthetic ropivacaine**
J. Marchi (Sp), D.C. Figueredo, V. Sasso, A.C.S. Akkari, D.R. de Araujo, Universidade Federal do ABC, Santo André (Brazil)

I-207 **Aerogels of polysaccharides as bio-based template materials**
K. Ganesan, Institut für Materialphysik im Weltraum, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Linder Höhe, Köln (Germany); L. Ratke, Institut für Materialphysik im Weltraum, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Linder Höhe, Köln (Germany)

Tissue Enginieering/ Regenerative Medicine

K-3 **Tribological behaviour of DLC-coated UHMW-polyethylene inlays investigated by pin-on-disk test and knee prostheses wear simulator**
A. Dorner-Reisel (Sp), R. Lieberwirth, University of Applied Sciences, Schmalkalden (Germany); U. Kremling, IMA GmbH, Dresden (Germany); G. Reisel, Sulzer Metco WOKA GmbH, Barchfeld (Germany); G. Irmer, TU Bergakademie Freiberg (Germany)

K-30 Oral Poster **Surface modification of poly-L-lactide by picosecond laser irradiation: Effect of substrate topography on proliferation and differentiation of human Mesenchymal Stem Cells**
R. Ortiz (Sp), Fundación IK4-Tekniker, Eibar (Spain); S. Moreno-Flores, J.L. Toca-Herrera, University of Natural Resources and Life Sciences, Vienna (Austria); I. Quintana, Fundación IK4-Tekniker, Eibar (Spain)

K-36 Oral Poster **Customised Open Porous Beta-Ti Scaffolds by Selective Laser Melting and Chemical Surface Post-Treatment**
G. Yablokova (Sp), M. Speirs, J. Luyten, J. Van Humbeeck, J.P. Kruth, J. Schrooten, KU Leuven (Belgium)

Tissue Enginieering/ Regenerative Medicine (continued)

K-49 **Reconstruction of soft tissue with biodegradable polymers**
C. Hege (Sp), S. Schiller, University of Freiburg (Germany)

K-65 **Tissue engineering of vascular grafts: Optimizing the cell seeding density**
K. Kleinsteinberg (Sp), L.E. Keijzer, L. Hrdlicka, L. Hurtado, J. Frese, L. Rongen, S. Weinandy, I. Appel, P. Mela, S. Jockenhoevel, S. Koch, RWTH Aachen University (Germany)

K-77 **Respiratory Epithelium in a 3D Culture Environment – Co-Culture with Fibroblasts in Fibrin Gel**
A.L. Thiebes, S. Albers, S. Weinandy (Sp), RWTH Aachen (Germany); S. Weinandy, S. Jockenhoevel, RWTH Aachen University (Germany); C. Cornelissen, University Hospital Aachen (Germany)

K-92 **Heterogeneous Sulphation of Chitosan partikels in the solid phase preserving their three-dimensional Morphology**
S. Höhne (Sp), A. Breier, Leibniz-Institut für Polymerforschung Dresden e.V. (Germany); T. Hanke, H. Worch, Technische Universität Dresden (Germany); F. Simon, Leibniz-Institut für Polymerforschung Dresden e.V. (Germany)

K-98 **Polymer impregnated and surface activated calcium phosphate scaffolds and their analysis in dynamic 3D osteoblast cell culture**
C. Bergemann (Sp), University Medical Center Rostock (Germany); M. Cornelsen, University of Rostock (Germany); G. Grimm, INNOVENT e.V., Jena (Germany); B. Finke, A. Quade, Leibniz Institute for Plasma Science and Technology (INP), Greifswald (Germany); V. Weissmann, Institute for Polymer Technologies, Wismar (Germany); M. Schnabelrauch, INNOVENT e.V., Jena (Germany); H. Seitz, University of Rostock (Germany); B. Nebe, University Medical Center Rostock (Germany)

K-108 **A Novel Design Bilayered Silk Fibroin Membrane Scaffolds for Chronic Wound Healing**
K. Tuzlakoglu (Sp), C.O. Cakir, Yalova University (Turkey); M.T. Ozturk, Gebze Institute of Technology, Kocaeli (Turkey); S. Dincer, Abdullah Gul University, Kayseri (Turkey)

K-115 **Atomic Forse Microscopy Analysis of Corneal Biomechanics**
C. Labate (Sp), M.P. De Santo, University of Calabria, Rende (Italy); M. Lombardo, IRCS G.B. Bietti, Rome (Italy); G. Lombardo, R. Barberi, University of Calabria, Rende (Italy)

K-135 Oral Poster **In vitro analysis of biomaterial/cartilage regeneration using the bovine cartilage punch model**
V. Kopsch (Sp), T. Ruediger, A. Dunzel, University Hospital Jena, Eisenberg (Germany); P. Foehr, R.H. Burgkart, Technische Universität München, Munich (Germany); T. Graeve, Amedrix GmbH, Esslingen (Germany); R.W. Kinne, University Hospital Jena, Eisenberg (Germany)

K-136 **Evaluation of the articular cartilage thickness – A comparative study of different animal models for cartilage repair and regeneration**
T. Ruediger (Sp), A. Dunzel, University Hospital Jena, Eisenberg (Germany); R.H. Burgkart, Technische Universität München, Munich (Germany); M. Walther, R.W. Kinne, University Hospital Jena, Eisenberg (Germany)

K-138 **In vitro testing of injectable calcium phosphate cement with indicator cell lines**
E. Kunisch (Sp), University Hospital Jena, Eisenberg (Germany); S. Maenz, Friedrich-Schiller-University of Jena (Germany); F. Ploeger, Biopharm, Heidelberg (Germany); J. Bossert, Friedrich-Schiller-University of Jena (Germany); R.W. Kinne, University Hospital Jena, Eisenberg (Germany)

Tissue Enginieering/ Regenerative Medicine (continued)

K-149 **Novel poly(butylene succinate) nanocomposites containing silica-nanotubes and strontium nanoparticles for tissue engineering applications**
N. Nianias, I. Grigoriadou, E. Roumeli, Z. Terzopoulou, C. Chrissafis, D. Bikiaris, Aristotle University of Thessaloniki (Greece); J. Will, J. Hum, A. Hoppe, J.A. Rother, A.R. Boccaccini (Sp), University of Erlangen-Nuremberg (Germany)

Dental Materials

L-27 **Influence of density on the abrasion behavior of an experimental resin infiltrated hybrid ceramic as a new dental restorative material**
C. Schille (Sp), G. Wedenig, J. Geis-Gerstorfer, University Hospital of Tuebingen, (Germany)

L-101 **Electrophoretic deposition of 3D shaped ceramic constructs for dental applications**
S. Frank, C. Mochales (Sp), C. Fleckenstein, Charité Universitaetsmedizin Berlin (Germany); R. Zehbe, C. Fleck, Technische Universität Berlin (Germany); W.-D. Müller, Charité Universitätsmedizin Berlin (Germany)

L-117 **Surface modification of dental implants with antibacterial copolymers**
M. Waßmann (Sp), Technische Universität Braunschweig (Germany); A. Winkel, Hannover Medical School (Germany); W. Dempwolf, Technische Universität Braunschweig (Germany); M. Stiesch, Hannover Medical School (Germany); H. Menzel, Technische Universität Braunschweig (Germany)

L-161 **Nanoporous Silica Nanoparticles with Different Morphologies as Fillers for Dental Composite Materials**
M. Stiesch, Klinik für Zahnärztliche Prothetik und Biomedizinische Werkstoffkunde, Medizinische Hochschule Hannover (Germany); H. Menzel, Institut für Technische Chemie, Technische Universität Braunschweig (Germany); P. Behrens, Institut für Anorganische Chemie, Leibniz Universität Hannover (Germany)

List of Authors

List of Authors

List of Authors

List of Participants

Registrations considered until 2 April 2013

Number of participants: n

A

Abdi, S.; Leibniz-Institut für Festkörper- und Werkstoffforschung, Dresden (Germany)

Al-Zahrani, T.; Universitätsklinikum Tübingen (Germany)

Albrecht, P.; c/o Boston Scientific Technologie Zentrum GmbH, Feldafing (Germany)

Aliuos, P.; Medizinische Hochschule Hannover (Germany)

Aminian, A.; Universität Bremen (Germany)

Andreeva, D.; Universität Bayreuth (Germany)

Azad, M.A.K.; Universität Bonn (Germany)

B

Banerjee, S.; ICE Publishing, London (UK)

Baowan, D.; Mahidol University , Bangkok (Thailand)

Barcikowski, S.; Universität Duisburg-Essen (Germany)

Baumann, A.; Verein Deutscher Ingenieure e.V., Düsseldorf (Germany)

Bergemann, C.; Universität Rostock (Germany)

Berzina-Cimdina, L.; Riga Technical University (Latvia)

Boccaccini, A.R.; Friedrich-Alexander-Universität Erlangen-Nürnberg (Germany)

Boehm, A.; Friedrich-Schiller-Universität Jena (Germany)

Böttcher, C.; JPK Instruments AG, Berlin (Germany)

Borchers, K.; Fraunhofer-Institut für Grenzflächen- und Bioverfahrenstechnik, Stuttgart (Germany)

Brauer, D.; Friedrich-Schiller-Universität Jena (Germany)

Brennscheidt, A.; VDI Technologiezentrum GmbH, Düsseldorf (Germany)

Brückner, P.; Thüringisches Institut für Textil- und Kunststoff-Forschung e.V., Rudolstadt-Schwarza (Germany)

Busscher, H.J.; Universität Groningen (Netherlands)

Buyakov, A.; Siberian Branch Russian Academy of Sciences, Tomsk (Russia)

Buyakova, S.; Siberian Branch Russian Academy of Sciences, Tomsk (Russia)

C

Cai, T.; National University of Singapore (Singapore)

Capek, J.; Institute of Chemical Technology, Prague (Czech Republic)

Ciapetti, G.; Instituto Ortopedico Rizzoli, Bologna (Italy)

Colaço, R.; Instituto Superior Tecnico, Lissabon (Portugal)

Cuniberti, G., Prof. Dr.; Technische Universität Dresden (Germany)

D

Daoui, H.; Univesity of Science and Technology, Tizi Ouzou (Algeria)

Degand, S.; UCLouvain, Louvain-la-Neuve (Belgium)

Dempwolf, W.; Technische Universität Braunschweig (Germany)

Dendorfer, S.; Hochschule Regensburg (Germany)

Dewald, I.; Universität Bayreuth (Germany)

Dinçer, S.; Abdullah Gul University, Kayseri (Turkey)

Doblhofer, E.; Universität Bayreuth (Germany)

Donesz-Sikorska, A.; Wroclaw University of Technology (Poland)

Dorner-Reisel, A.; Fachhochschule Schmalkalden, Chemnitz (Germany)

Douglas, T.; Ghent University (Belgium)

E

Ehlert, N.; Leibniz Universität Hannover (Germany)

El Fray, M.; West Pomeranian University of Technology, Szczecin (Poland)

Elsner, M.B.; Universität Bayreuth (Germany)

Englert, C.; Friedrich-Schiller-Universität Jena (Germany)

Epple, M.; Ruhr-Universität Duisburg-Essen (Germany)

Esteban, L.; Consejo Superior de Investigaciones Científicas, Madrid (Spain)

Evis, Z.; Middle East Technical University, Ankara (Turkey)

F

Falke, M.; Bruker Nano GmbH, Berlin (Germany)

Fischer, F.O.R.; Deutsche Gesellschaft für Materialkunde e.V., Frankfurt (Germany)

Flauder, S.; Friedrich-Schiller-Universität, Jena (Germany)

Friak, M.; Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf (Germany)

Fullriede, H.; Leibniz Universität Hannover (Germany)

G

Galante, R.; Universidade Técnica de Lisboa, Lissabon (Portugal)

Gamrad, L.; Universität Duisburg-Essen (Germany)

Ganesan, K.; Deutsches Zentrum für Luft- und Raumfahrt , Köln (Germany)

Gao, Y.; University of Sheffield (UK)

Garcia-Fernandez, L.; Max-Planck-Institut für Polymerforschung, Mainz (Germany)

Garipcan, B.; Bogaziçi University, Istanbul (Turkey)

Giamblanco, N.; University of Catania (Italy)

Giner, I.; Universität Paderborn (Germany)

Gladitz, M.; Thüringisches Institut für Textil- und Kunststoff-Forschung e.V., Rudolstadt-Schwarza (Germany)

Gömze, L.A.; IGREX Engineering Service Ltd, Igrici (Hungary)

Güllmar, A.; Universitätsklinikum Jena (Germany)

H

Hartlieb, M.; Friedrich-Schiller-Universität Jena (Germany)

Heemeier, T.; Leibniz Universität Hannover (Germany)

Hege, C.; Universität Freiburg (Germany)

Heidebrecht, A.; Universität Bayreuth (Germany)

Hein, S.; Fraunhofer IFAM, Bremen (Germany)

Helfricht, N.; Universität Bayreuth (Germany)

Helth, A.; IFW Dresden (Germany)

Hensel, R.; Leibniz-Institut für Polymerforschung Dresden e.V. (Germany)

Hoch, E.; Universität Stuttgart (Germany)

Höhne, S.; Leibniz-Institut für Polymerforschung Dresden e.V. (Germany)

Huber, J.; Universität Ulm (Germany)

Hunt, J.; Universität Liverpool (UK)

Hurle, K.; Friedrich-Alexander-Universität Erlangen-Nürnberg (Germany)

I

Imgrund, P.; Fraunhofer-Institut für Fertigungstechnik und Angewandte Materialforschung, Bremen (Germany)

Isoglu, I.A.; Abdullah Gul University, Kayseri (Turkey)

J

Jandt, K.D.; Friedrich-Schiller-Universität Jena (Germany)

Jimenez, M.; SAW Instruments GmbH, Bonn (Germany)

Jose, C.; Newman College Thodupuzha, Thodupuzha, Kerala (India)

K

Kalatur, E.; Siberian Branch Russian Academy of Sciences, Tomsk (Russia)

Karpukhina, N.; Queen Mary University of London (UK)

Kaune, V.; Technische Universität Darmstadt (Germany)

Kauschke, V.; Justus-Liebig-Universität Giessen, Gießen (Germany)

Keller, T.F.; Deutsches Elektronen-Synchroton DESY, Hamburg (Germany)

Kent, N.W.; Queen Mary University of London (UK)

Kiesel, I.; TU Dortmund (Germany)

Killinger, A.; Universität Stuttgart (Germany)

Kleinhans, C.; Universität Stuttgart (Germany)

Kleinsteinberg, K.; RWTH Aachen (Germany)

Kluger, P.; Fraunhofer-Institut für Grenzflächen- und Bioverfahrenstechnik, Stuttgart (Germany)

Koenen, S.; Universität Duisburg-Essen (Germany)

Kopsch, V.; Universitätsklinikum Jena, Eisenberg (Germany)

Krzak-Ros, J.; Wroclaw University of Technology (Poland)

List of Participants
Registrations considered until 2 April 2013
Number of participants: n

Kubasek, J.; Institute of Chemical Technology, Prag (Czech Republic)

Kühn, S.; Queen Mary University of London (UK)

Kuever, J.; Bremen Institut für Werkstofftechnik (Germany)

Kufelt, O.; Laser Zentrum Hannover e.V. (Germany)

Kulkov, S.; Tomsk State University (Russia)

Kunisch, E.; Universitätklinikum Jena, Eisenberg (Germany)

L

Labate, C.; University of Calabria, Rende (Italy)

Lada, M.; Deutsche Gesellschaft für Materialkunde e.V., Frankfurt (Germany)

Lang, G.; Universität Bayreuth (Germany)

Lee-Thedieck, C.; Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen (Germany)

Lehr, C.-M.; Saarland University, Saarbrücken (Germany)

Loca, D.; Riga Technical University (Latvia)

Locs, J.; Riga Technical University (Latvia)

Lorenzetti, M.; Jozef Stefan Institute, Ljubljana (Slovenia)

Lüdecke, C.; Friedrich-Schiller- Universität Jena (Germany)

M

Maenz, S.; Friedrich-Schiller-Universität Jena (Germany)

Mail, M.; Universität Bonn (Germany)

Mangold, A.; Deutsche Gesellschaft für Materialkunde e.V., Frankfurt (Germany)

Mano, J.F.; University of Minho, Braga (Portugal)

Marchi, J.; Universidade Federal do ABC , Santo André (Brazil)

Marletta, G.; University of Catania (Italy)

Martinelli, E.; Medizinische Universität Graz (Austria)

Mathew, L.; Newman College Thodupuzha, Thodupuzha, Kerala (India)

Million, N.; Universität Duisburg-Essen (Germany)

Mitachi, S.; Tokyo University of Technology (Japan)

Mittelmeier, W.; Universitätsklinikum Rostock (Germany)

Mochales, C.; Charité Universitätsmedizin Berlin (Germany)

Moghtader, F.; Hacettepe University, Ankara (Turkey)

Mostaghaci, B.; Helmholtz-Zentrum für Infektionsforschung GmbH, Braunschweig (Germany)

Moszner, N.; Ivoclar Vivadent AG, Schaan (Liechtenstein)

Moya, J.S.; CSIC, Madrid (Spain)

Mozaffari-Jovein, H.; Hochschule Furtwangen, Tuttlingen (Germany)

Müller, C.; TU Kaiserslautern (Germany)

Müller, M.; Leibniz-Institut für Polymerforschung Dresden e.V. (Germany)

Müller, W.E.G.; Johannes Gutenberg Universität Mainz (Germany)

Neubauer, M.P.; Universität Bayreuth (Germany)

N

Nickerl, J.; Leibniz-Institut für Polymerforschung Dresden e.V. (Germany)

Noberi, C.; Yildiz Technical University, Istanbul (Turkey)

O

Örlygsson, G.; Innovation Center Iceland, Reykjavik (Iceland)

Ohrndorf, A.; Universität Siegen (Germany)

Ortiz, R.; Fundación IK4-Tekniker, Eibar (Gipuzkoa) (Spain)

P

Paradiso, P.; Instituto Superior Técnico, Lissabon (Portugal)

Pastorino, D.; Technical University of Catalonia (UPC), Barcelona (Spain)

Penzkofer, R.; Hochschule Regensburg (Germany)

Pettersson, C.; JPK Instruments AG, Berlin (Germany)

Piskin, E.; Hacettepe University, Ankara (Turkey)

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R

Rau, G.J.; Universität Kiel (Germany)

Rebl, H.; Universitätsmedizin Rostock (Germany)

Rehbock, C.; Universität Duisburg-Essen (Germany)

Reindl, A.; Fraunhofer Institut für Fertigungstechnik und Angewandte Materialforschung (IFAM), Bremen (Germany)

Reinhardt, M.; TU Chemnitz (Germany)

Reuter, G.; Medizinischen Hochschule Hannover (Germany)

Rezwan, K.; Universität Bremen (Germany)

Richter, H.; ROWIAK GmbH, Hannover (Germany)

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Ruediger, T.; Universitätsklinikum Jena, Eisenberg (Germany)

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Sarker, B.; Universität Erlangen-Nürnberg (Germany)

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Schmidt, J.; Innovent e.V. Technologieentwicklung Jena (Germany)

Schmidt, S.; Max-Planck-Institut für Kolloid- und Grenzflächenforschung, Golm (Germany)

Schnabelrauch, M.; INNOVENT e.V., Jena (Germany)

Schneider, G.; Universitätsklinikum Jena (Germany)

Schnettler, R.; Universitätsklinikum Gießen und Marburg (Germany)

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Schreder, E.; LOT-Oriel GmbH & Co. KG, Darmstadt (Germany)

Schröder, U.; AHC Oberflächentechnik GmbH, Berlin (Germany)

Serro, A.P.; Instituto Superior Técnico, Lissabon (Portugal)

Shahabi, S.; Universität Bremen (Germany)

Silva, D.; Instituto Superior Técnico, Lisbon (Portugal)

Stankeviciute, Z.; Vilnius University (Lithuania)

Stötzel, C.; Friedrich Schiller Universität, Jena (Germany)

Stolze, B.; ROWIAK GmbH, Hannover (Germany)

Strehmel, C.; Technische Universität Berlin (Germany)

T

Taubert, A.; Universität Potsdam, Golm (Germany)

Tauhardt, L.; Friedrich-Schiller-Universität Jena (Germany)

Teizer, W.; Tohoku University, Sendai (Japan)

Thiruvengadam, V.; Indian Institute of Technology Bombay (India)

Tone, C.M.; University of Calabria, Arcavacata di Rende-Cosenza (Italy)

Torger, B.; Leibniz-Institut für Polymerforschung Dresden e.V. (Germany)

Tuzlakoglu, K.; Yalova University (Turkey)

Tuzlakoglu Ozturk, M.; Gebze Institute of Technology, Kocaeli (Turkey)

Tylkowski, M.; Friedrich-Schiller-Universität, Jena (Germany)

U

Uting, M.; Thüringisches Institut für Textil- und Kunststoff-Forschung e.V., Rudolstadt (Germany)

W

Walther, A.; RWTH Aachen (Germany)

Wang, X.; Johannes Gutenberg Universität Mainz (Germany)

List of Participants
Registrations considered until 2 April 2013
Number of participants: n

Waßmann, M.; Technische Universität Braunschweig (Germany)

Watts, D.; University of Manchester (UK)

Weber, K.; Friedrich-Schiller-Universität Jena (Germany)

Webster, T.J.; Northeastern University, Boston (USA)

Weik, T.; Aesculap AG, Tuttlingen (Germany)

Weinandy, S.; RWTH Aachen (Germany)

Weinberg, A.-M.; Schüttorf (Germany)

Weis, S.; Max Planck Institute for Polymer Research, Mainz (Germany)

Weiss, I.; INM-Leibniz-Institut für Neue Materialien gGmbH, Saarbrücken (Germany)

Wendt, N.; Leibniz Universität Hannover (Germany)

Wenzel, C.; Friedrich-Schiller-Universität Jena (Germany)

Witte, F.; Medizinische Hochschule Hannover (Germany)

Wolfram, T.; KLS Martin Group, Mühlheim a. d. Donau (Germany)

Y

Yablokova, G.; KU Leuven (Belgium)
Yerokhin, A.L.; University of Sheffield (UK)
Yeung, W.K.; University of Sheffield (UK)
Yu, X.; Philipps Universität Marburg (Germany)

Z

Zeitz, C.; Saarland University, Saarbrücken (Germany)
Zhang, Q.; University of Marburg (Germany)
Zhuravleva, K.; Leibniz-Institut für Festkörper- und Werkstoffforschung Dresden (Germany)
Zorn, K.; Friedrich-Schiller-Universität Jena (Germany)

Conference Location

Park Inn by Radisson Weimar Hotel
Kastanienallee 1
99428 Weimar
http://www.parkinn.de/hotel-weimar

Location of the hotel in Weimar

The Park Inn by Radisson Hotel Weimar 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. The number 6 bus 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 15.- Euro. There is also the option of taking the number 6 city bus towards Legefeld. Current bus timetables can be requested when making your reservation. The transfer takes around 20-25 minutes.

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 on 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

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Internet Access

Vouchers for Internet Access 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.

Organisation

Anja Mangold, Yvonne Koall
Deutsche Gesellschaft
für Materialkunde e.V.
Senckenberganlage 10
D-60325 Frankfurt

Tel.: +49 (0)69 75306 747
Fax: +49 (0)69 75306 733
E-mail: biomat@dgm.de
Internet: www.dgm.de/biomat

Exhibition Organisation

Alexia Ploetz
Inventum GmbH
Hensstraße 3
D-53173 Bonn
Tel.: +49 0151-2122 7448
Fax: +49 (0)69 75306 733
E-mail: exhibition@inventum.de

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.

The Coffee Breaks will be partly sponsored by:

List of Participants

An updated List of Participants is availble on our homepage:
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Abstracts

All abstracts are on display on the conference website and will remain online after the conference for print or download.

Young Researchers up to 30 years:

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The conference fees include the Technical Programme, refreshments during the official breaks, lunch, Posterevening.

Postersession

Tuesday, 23. April 2013
Room Goethe
17:10 Oral Poster Presentations
18:30 Poster Discussion in the Foyer

During the Oral Poster Presentations the poster authors are requested to introduce their poster orally within 3 minutes.

The Poster Discussion will give poster authors the opportunity to be available in front of their posters to discuss their subjects and respond to questions. Snacks and beverages will be offered.

The Posterevening Barbeque will be partly sponsored by:

Poster Award

A prize for the best poster will be awarded by a jury. The prize will be announced and awarded on **Wednesday, 24. April 2013** at **16:20**, prior to the closing address.

The prize will be sponsored by:

What can you, should you, and is worthwhile seeing, experiencing or tasting while you are here? We have ten suggestions that can be modified according to your preferences, of course.

Foto: © weimar GmbH

1 - Guided Walking Tour
In order to obtain an initial overwiev of the city, we recommend a guided walking tour.

Foto: Maik Schuck, © weimar GmbH

2 - Goethe's Home and Goethe National Museum..
...provide the most important evidence of the Weimar classics. One of the most important examples of Classical Weimar, Johann Wolfgang von Goethe lived in this Baroque house for almost fifty years. He lived there from 1782 to 1789 as a tenant, then from 1792 to 1832 as the owner. The poet planned the form and furnishing of the rooms as well as its rich collections, e.g. in the Juno Room. The furnishings and fittings from the last few years of Goethe's life have largely been preserved. For reasons of conservation, the number of visitors is limited.

Foto: Maik Schuck, © weimar GmbH

3 - The Bauhaus-Museum. The Bauhaus comes from Weimar
The Bauhaus, opened in April 1919 in Weimar, located in Dessau beginning in 1925 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.

Foto: © Klassik Stiftung Weimar

4 - City Palace
After several fires before, in 1774, the three-wing annex was again destroyed by fire, with only the enclosure walls left standing. Duke Carl August convened a palace construction commission under the direction of Goethe. These are memorial rooms in honour of Christoph Martin Wieland, Johann Gottfried Herder, Friedrich Schiller and Johann Wolfgang Goethe. The city palace has been used as a museum since 1923. It is also the administrative headquarters of the Klassik Stiftung Weimar.

© Gedenkstätte Buchenwald

5 - Buchenwald memorial
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 here by the Soviets between 1945 and 1950, including 7,000 who died??

Foto: © weimar GmbH

6. Park on the River Ilm
is a place for intellectual activity, relaxation and entertainment - both in the past and the present. Goethe sought the closeness to nature - and found it. The 48-hectare landscaped park on the edge of Weimar's old town is part of a kilometre-long stretch of green along the Ilm. It was laid between 1778 and 1828 and features both sentimental, classical and post-classical/romantic styles. Important characteristics of the park include the numerous lines of sight linking features such as Goethe's garden house, the Roman House and the bark house within the park; these also connect them with the surrounding countryside.

Foto: Guido Werner, © weimar GmbH

7. The "Deutsche Nationaltheater und Staatskapelle Weimar"
The successor of the Weimar Court Theatre, whose director was once Goethe. The neoclassical structure was completed in 1908. Over the decades, it has been rebuilt a number of times and also 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 theatrical company in Thuringia as well as the Staatskapelle Weimar orchestra.

Foto: Maik Schuck, © weimar GmbH

8. The Rokoko hall
at the Herzogin Anna Amalia Bibliothek (historical library) that once again gleams in new splendour. There are one million volumes at the new and old library.

The Historical Library (Duchess Anna Amalia Library) is one of the most famous libraries in Germany. Anna Amalia had the 'Green Palace' turned into a library comprising a unique combination of books, an art collection and architecture. The Rococo Hall is especially famous. On the evening of September 2nd 2004, a devastating fire broke out in the original building of the Herzogin Anna Amalia Library and developed 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
is the tradition-minded choice among the normal selection of fast food. The Thuringian grilled sausage is a local specialty. According to EU regulations, the sausage is at least 15-20 cm long, consisting of medium-finely ground, heartily seasoned sausage meat encased in a thin natural casing, either raw or cooked. For the Thuringian, his sausage – just like his "Rostbrätl" (grilled pork cutlet) – is not simply a food, it 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 a sin! So try out in one of the cosy cafès in Weimar - you can burn the calories during a walk in the parkgrounds.

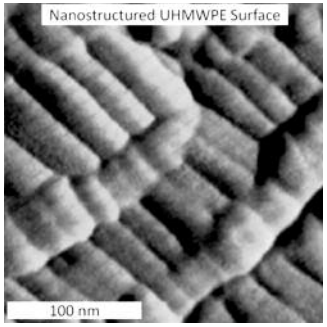
DGM Technical Committee Biomaterials

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 simulations, 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 Institute of Materials Science and Technology

The Institute of Materials Science and Technology (IMT) at the Friedrich Schiller University of Jena focuses its research on biomaterials, surfaces and interfaces of materials, and nano-materials. At the Chair of Materials Science at IMT, novel biomaterials, 3D scaffolds for tissue engineering, antimicrobial materials for inhibiting biofilm formation, dental materials and biopolymers just to name a few, are created, characterized, and biologically tested. Applications are ranging from the medical field to pharmacy and biotechnology.



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Novel strategies to functionalize and pattern biomedical surfaces at the nano- and microscale are developed at IMT by techniques such as layer by layer deposition, micro-contact printing and ink jet printing. Surfaces of amphiphilic, degradable, or crystalline polymers suitable for the investigation of biomolecule-surface interactions are designed by utilizing polymer physics and molecular self-assembly.

Furthermore the molecular self-assembly of protein nanofibers have recently attracted the interest of scientists at IMT.
Materials characterization at IMT 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.

List of Exhibitors

JPK Instruments AG
Bouchéstr. 12
12435 Berlin, Germany
Phone: +49 30 5331 12070
Fax: +49 30 5331 22555
E-Mail: office@jpk.com
http://www.jpk.com

JPK Instruments AG is a world leading manufacturer of nanoanalytic instruments that enable unparalleled access at the nanotechnology level. JPK was recognized as Germany's fastest growing nanotechnology company in 2007 and 2008 (Deloitte). The product portfolio is based around atomic force microscopes and optical tweezers for a wide range of applications, from soft matter physics to nano-optics, from surface chemistry to cellular and molecular biology. Leading-edge instruments from JPK are used by the most renowned research institutes across the world. Headquartered in Berlin and with operations in Dresden (Germany), Cambridge (UK), Singapore, Tokyo (Japan) and Paris (France), JPK maintains a global network of distributors and support centers and provides on the spot applications and service support to an ever-growing community of researchers.

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ROWIAK GmbH
Garbsener Landstraße 10
D-30419 Hannover, Germany
Phone: +49 511 277 2952
Fax: +49 511 277 2959
E-Mail: h.richter@rowiak.de
http://www.rowiak.de

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Two new journals, Green Materials and Surface Innovations, were launched in March 2013. All 'ahead of print' articles and published issues will be free to read for the duration of 2013.

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Sponsor Poster Award

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Professor and Chair, Department of Chemical Engineering
Northeastern University
th.webster@neu.edu
http://www.northeastern.edu

The *International Journal of Nanomedicine* is an international, peer-reviewed open access journal focusing on the application of nanotechnology in diagnostics, therapeutics, and drug delivery systems throughout the biomedical field. Reflecting the growing activity in this emerging specialty, the aim of this journal is to highlight research and development leading to potential clinical applications in the prevention and treatment of disease.

The journal is published by Dove Medical Press and has an impact factor of 3.130. The Editor-in-Chief is Professor Thomas Webster, Chair of the Department of Chemical Engineering, Northeastern University. It is endorsed by the American Society for Nanomedicine and indexed in PubMed, MedLine, American Chemical Society's 'Chemical Abstracts Service' (CAS), Science Citation Expanded (also known as SciSearch®), accepted into Science Citation Index (SCI) beginning with the 2012 volume, Current Contents®/Clinical Medicine, Journal Citation Reports/Science Edition, Embase, Emcare, Scopus and the Elsevier Bibliographic databases.

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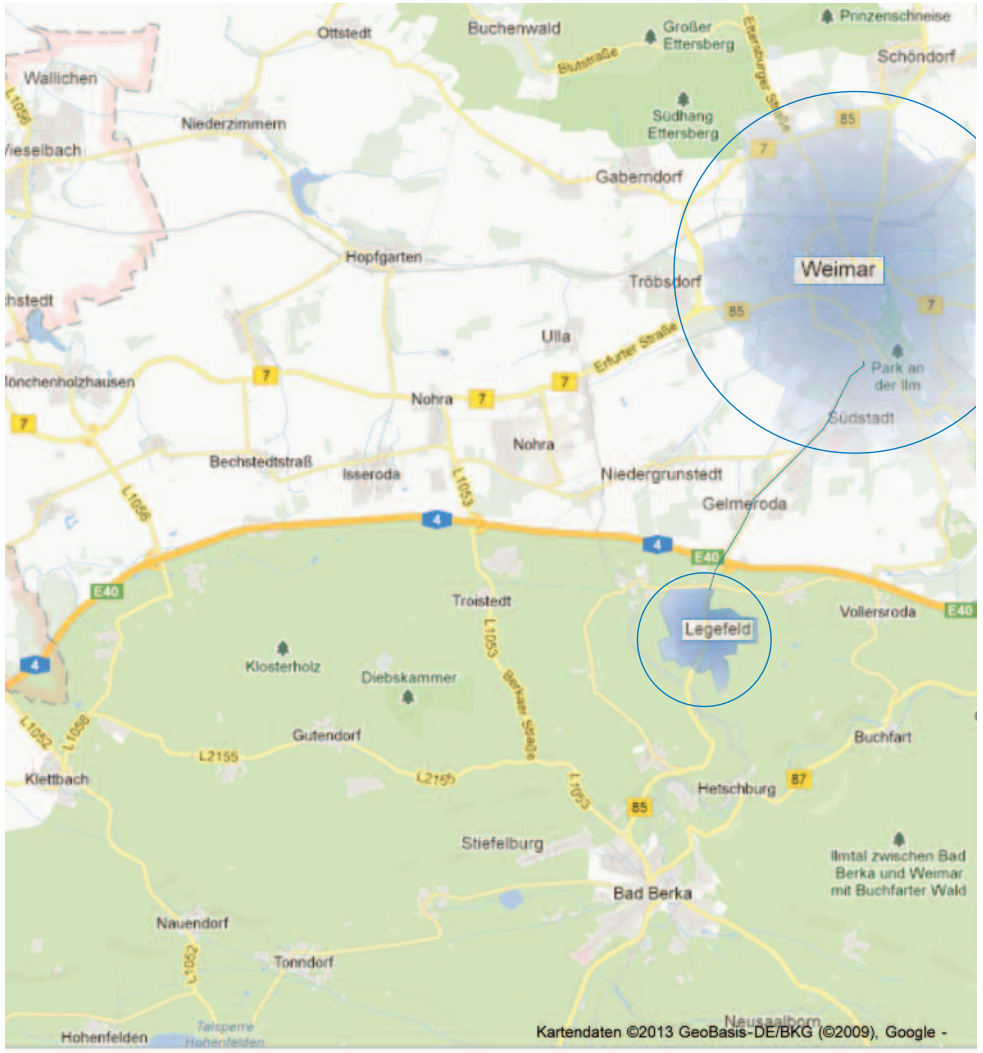

Map of Weimar

Deutsche Gesellschaft
für Materialkunde e.V.

Senckenberganlage 10
D-60325 Frankfurt

Tel.: +49 (0)69 75306 747
Fax: +49 (0)69 75306 733
www.dgm.de

biomat@dgm.de
www.dgm.de/biomat

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