



Annual Conference of the German Society for Biomaterials



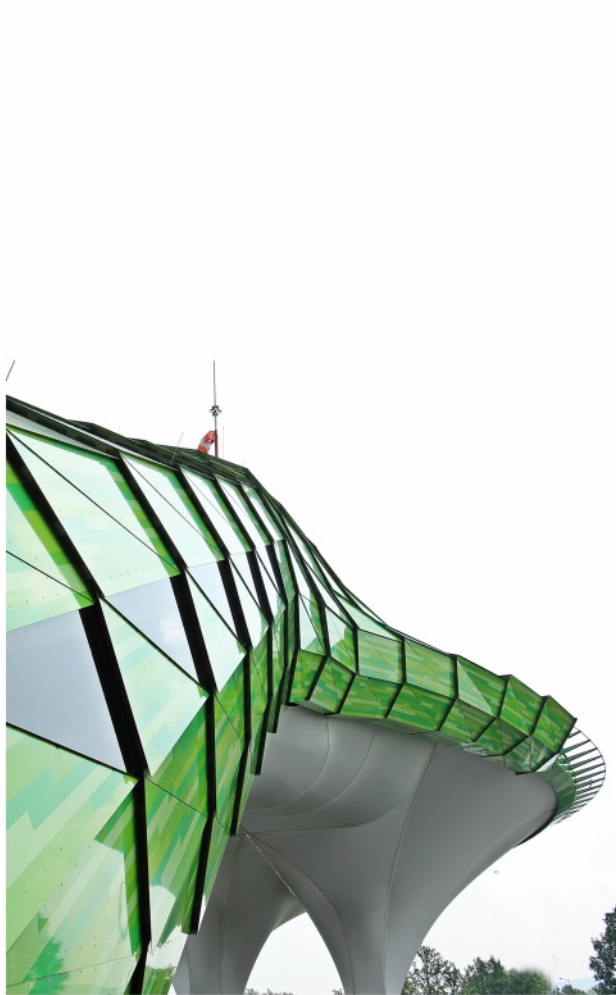
24-26 September 2026 | Aachen



RWTH Aachen
University Hospital

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Program



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Conference chair

Prof. Horst Fischer
Dental Materials and Biomaterials Research
RWTH Aachen University Hospital

Congress organizer

GWT-TUD GmbH
Freiberger Strasse 33
D-01067 Dresden
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Local Organizing Committee

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Local Scientific Committee

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Prof. Aldo Boccaccini, Prof. Dorothea Brüggemann, Prof. Daniela Filipa Duarte Campos, Prof. Uwe Gbureck, Prof. Michael Gelinsky, Prof. Tomasz Jüngst, Prof. Petra Kluger, Prof. Benjamin Kruppke, Prof. Cornelia Lee-Thedieck, Dr. Jana Markhoff

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Kai Melde ©Cordula Sonder, Adrian Ranga ©Bregd Van Hoeyveld
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The conference will take place at the

RWTH Aachen University Hospital
Pauwelsstrasse 30
52074 Aachen



Important information:

It is strongly recommended that you use public transportation to get to the conference. For your convenience, bus lines coming from all parts of Aachen including 3A, 3B, 4, 5, 32, 33, 45, 70, 73 and 80 stop in front of the Uniklinik.

There is no free parking available at the University Hospital. The parking fee for cars is 2.00 € per hour for the first two hours and 1.50 € per hour thereafter.

Please note that Eduroam and Telekom's free WiFi are available at the RWTH Aachen University Hospital.

Welcome Remarks from the Conference Chairman



Dear Colleagues,

Welcome to Aachen for the Annual Conference of the German Society for Biomaterials. You have the program booklet in your hands, which contains all the information you need for this great yearly event. The main part of the information provided here, of course, is the detailed scientific program. Thanks to your many valuable contributions, my team and I have been able to put together an exciting scientific program for the next two and a half days. Additionally, we have organized a hands-on biofabrication workshop for the Young Scientists Forum (YSF) community the day before the congress begins.

Be inspired by our plenary talks, which will be given by Laura De Laporte, Lorenzo Moroni, Adrian Ranga, and Kai Melde. The short talks and posters will also provide you with cutting-edge insights into our fascinating research field of biomaterials. You will be informed about the latest results on the following topics: *Biofabrication, In Vitro Models, Extracellular Matrix Substitutes, Drug Delivery, Advanced Polymeric Biomaterials, Spheroids and Organoids, Surface Functionalization and Coatings, and Ceramics and Glasses*. Additionally, we have compiled a few contributions on other interesting research topics in the *Free Topics* session.

We have decided to allow a maximum of ten minutes for each short talk to ensure enough time for subsequent discussions because feedback, especially for our young presenting scientists, is of major importance. Once again, we have scheduled a *Rapid Fire* session in which thirty poster presenters will have the opportunity to highlight their most important findings in 2:30-minute pitches. This helps the poster presentations receive more attention. And the auditorium will be presented with a large number of new, condensed scientific results in a short amount of time.

We are looking forward to our social event on Friday evening. I am sure you will like the location, the unique Aachen restaurant *La Fabrik*. Enjoy modern dining in a remarkably renovated old factory. Additionally, I encourage you to invest some time to walk through the beautiful old town of Aachen with its narrow streets and historic buildings.

I would like to thank my team for their great dedication in organizing our meeting. I am also grateful to my colleagues from our local and national scientific committees who carefully reviewed and evaluated all the submitted abstracts. Finally, I would like to thank Mrs. Schuster and her team from the congress company GWT-TUD GmbH for their professional organization of the event.

I hope we all have a wonderful, inspiring conference!

Best regards,
Horst Fischer.



Dear Colleagues,

Dear Members of the German Society for Biomaterials,

Dear Guests,

It is my great pleasure to welcome you to the 2026 Annual Meeting of the German Society for Biomaterials in Aachen.

This event is the most important gathering for the biomaterials community in the German-speaking world. It provides a platform for presenting new scientific findings, discussing current developments and fostering existing and new collaborations. It also serves as a forum for personal connections and professional exchange across disciplinary boundaries.

What I particularly appreciate about our society is the diversity of its topics. Biomaterials research today encompasses a broad spectrum, from classical materials development and surfaces to implant materials, ceramics, polymers, biomedical applications, and modern approaches in biofabrication, regenerative medicine, and in vitro model systems. This diversity is a particular strength of the DGBM, making the scientific exchange within our community so valuable.

My heartfelt thanks go to the conference chair, Prof. Horst Fischer, and his team for organizing this conference and putting together such a high-quality scientific program. Aachen provides an excellent setting for this event.

A special greeting goes out to our early-career researchers. The ideas, creativity and dedication of young researchers are crucial for the future of our field. Make the most of the conference to engage in discussions, expand your professional network, and forge lasting connections.

I would also like to cordially invite you to the DGBM General Assembly on Friday 25 September at 16:15. The General Assembly offers the opportunity to learn about the current activities of our society and to actively contribute to the future development of the DGBM. I look forward to an open exchange with you.

I wish us all an exciting, inspiring and successful annual conference, filled with new ideas and stimulating discussions.

Best regards,
Petra Kluger.

General Information

Conference website

www.dgbm-kongress.de

Conference language

The conference language is English.

Certificates of attendance

Certificates of attendance will be sent via email after the event.

Registration

Please see page 38.

Information for oral presenters

Each plenary talk lasts 45 minutes. All other oral talks are limited to a maximum of ten minutes, and an additional five minutes are allocated for discussion. Presenters must upload their PowerPoint presentation files via the Converia website <https://express.converia.de/frontend/index.php?sub=2178> by 20 September 2026 at the latest.

Information for poster presenters

Posters can be displayed throughout the conference, from Thursday morning, 24 September, until noon on Saturday, 26 September 2026. Poster presenters are asked to display their posters on Thursday between 08:00 and 09:00, and remove them on Saturday between 12:00 and 13:00. Posters must be printed in portrait orientation in DIN A0 size.

Best Poster Award

The best poster will receive an award donated by the Wiley journals "Advanced NanoBiomed Research" and „Advanced Healthcare Materials". The YSF is tasked with evaluating the posters and selecting the best during the two poster sessions. The winner will receive a 200 € "Tango" card. On Friday afternoon, at the end of the DGBM General Assembly, the award will be presented.

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MATERIALS**

WIFI

In the building, eduroam and Telekom free WiFi are available.

Biofabrication Workshop (Labs of Fischer, De Laporte and Jockenhövel)

13:00 There are three labs to choose from, each of which is conducting specific experiments on different aspects of biofabrication.

Fischer lab

- Rheological characterization of complex hydrogels using an *ElastoSens* device
- Microextrusion bioprinting tests to investigate the relationship between rheological properties and appearance of the printed constructs
- Influence of the printing parameters on drop formation and print quality in acoustic bioprinting

De Laporte lab

- Fabrication of microfluidic devices
- Production of microgels using a microfluidic setup

Jockenhövel lab

- Production of textile scaffold structures using a warp knitting machine
- Molding of a tricuspid heart valve with a hydrogel system
- Bioprinting of endless-fiber reinforced biohybrid implants

Break

15:30 Transfer to the lecture hall

Young Scientists Session (HS 5)

16:00 Oral presentations by early-career researchers
Young Scientist Award

Break

18:00 Transfer to the city center

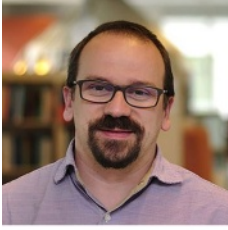
Get Together

19:00 YSF evening event (L'Osteria Aachen Kapuzinergraben)

Thursday, 24 September	
9:00-9:15, HS 3, Welcome	
9:15-10:00, HS 3 Plenary Talk: Lorenzo Moroni	
10:00-10:15, Large Seminar Room, Coffee Break	
10:15-11:30, HS 3 Biofabrication I	10:15-11:30, HS 4 Surface Functionalization and Coatings I
11:30-11:45, Large Seminar Room, Coffee Break	
11:45-13:00, HS 3 Biofabrication II	11:45-13:00, HS 4 Ceramics and Bioglasses
13:00-14:00, Cafeteria Lunch Break	
14:00-14:45, HS 3 Plenary Talk: Kai Melde	
14:45-15:00, Large Seminar Room, Coffee Break	
15:00-16:15, HS 3 In Vitro Models I	15:00-16:15, HS 4 Drug Delivery
16:15-16:30, Large Seminar Room, Coffee Break	
16:30-18:00, HS 3 Rapid Fire	
18:00-19:30, Large Seminar Room Poster Session I	

Friday, 25 September	
9:00-09:45, HS 3 Plenary Talk: Adrian Ranga	
9:45-10:00, Large Seminar Room, Coffee Break	
10:00-11:15, HS 3 Spheroids and Organoids	10:00-11:15, HS 4 Free Topics
11:15-11:30, Large Seminar Room, Coffee Break	
11:30-12:45, HS 3 In Vitro Models II	11:30-12:45, HS 4 Surface Functionalization and Coatings II
12:45-13:45, Cafeteria Lunch Break	
13:45-14:30, HS 3 Plenary Talk: Laura De Laporte	
14:30-14:45, Large Seminar Room, Coffee Break	
14:45-16:00, HS 3 Extracellular Matrix Substitutes	14:45-16:00, HS 4 Advanced Polymeric Biomaterials I
16:00-16:15, Large Seminar Room, Coffee Break	
16:15-17:45, HS 3 DGBM General Assembly	16:15-17:45, HS 4 Poster Session II
19:00-23:00, Restaurant La Fabrik Social Evening	

Saturday, 26 September	
9:00-10:15, HS 3 Biofabrication III	9:00-10:15, HS 4 Advanced Polymeric Biomaterials II Topics
10:15-10:30, Large Seminar Room, Coffee Break	
10:30-11:45, HS 3 Biofabrication IV	10:30-11:45, HS 4 In Vitro Models III
11:45-12:00, HS 3, Closing Ceremony	



Prof. Lorenzo Moroni

MERLN Institute for Technology-Inspired Regenerative Medicine, Department of Complex Tissue Regeneration, Maastricht University, The Netherlands

Advanced biofabrication



Prof. Laura De Laporte

DWI Leibniz Institute for Interactive Materials, Department of Macromolecular Materials for Medicine, RWTH Aachen University, Germany

Interactive and anisometric colloidal building blocks for regenerative medicine and tissue engineering



Dr. Kai Melde

Institute for Molecular Systems Engineering and Advanced Materials, University of Heidelberg, Germany

Holographic biofabrication with sound and light



Prof. Adrian Ranga

Department of Mechanical Engineering, BioMechanics, KU Leuven, Belgium

Bioengineering mechanically actuated organoids

Opening Ceremony (HS 3)

9:00

Welcome

Horst Fischer

Department of Dental Materials and Biomaterials Research, RWTH Aachen University Hospital

Plenary Talk (HS 3)

Session chair: Horst Fischer

9:15

Advanced biofabrication

Lorenzo Moroni

*MERLN Institute for Technology-Inspired Regenerative Medicine
Department of Complex Tissue Regeneration, Maastricht University, The Netherlands*

Coffee Break (Large Seminar Room)

10:00

Biofabrication I (HS 3)

Session chairs: Lorenzo Moroni and Daniela Filipa Duarte Campos

10:15

Collagen hollow spheres bridging 2D culture and organoids

Keynote

Ina Prade, Caroline Seidel, Fanny Mende, Santiago Castillo, Michael Meyer

FILK Freiberg Institute gGmbH

10:30

Warp-knitted PCL spacer fabrics: a textile platform for automated bioprinting and trilineage hMSC differentiation

Sebastian Scholpp¹, Nils Köhler¹, Leonie Anna Hoffmann², Eva Schätzlein¹, Thomas Gries², Caroline Emonts², Kaveh Roshanbinfar¹, Andreas Blaeser¹

¹ Institute for BioMedical Printing Technology, TU Darmstadt, ² Institut für Textiltechnik, RWTH Aachen University

10:45

Automated 3D-bioprinting platform for the creation of vascularized organs-on-a-chip

Anna Moritz-Fritschen, Nils Lindner, Joshua Fischer, Philipp Richthof, Andreas Blaeser

TU Darmstadt

11:00

Sustainable pectin-based granular hydrogels as inks for extrusion-based biofabrication: From agro-industrial byproducts to wound management

Mahboubeh Hosseini, Caterina Zanella, Annalisa Tirella

University of Trento, Italy

11:15

Functional characterization of adaptable 3D vascular in vitro models

Isabel Geroneit, Franz Moser, Florin Kluthe, Tomasz Jüngst

Universitätsklinikum Würzburg

Surface Functionalization and Coatings I (HS 4)

Session chairs: Meike Stiesch and Elke Bremus-Köbberling

10:15 **Antibacterial polyelectrolyte multilayer coatings functionalized by bacteriophages at model and implant materials**
Keynote

Martin Müller¹, Luise Wirth¹, Birgit Urban¹, Gopala-Krishna Mannala², Volker Alt²,

¹ *Leibniz Institut für Polymerforschung Dresden e.V.*, ² *Universitätsklinikum Regensburg*

10:30 **Surface modification of nitinol metal with a polymerized macromer to attach siRNA-Lipoplex-containing polyelectrolyte multilayers**

Jan Krieghoff¹, Maria Krabbes¹, Cara Wiegler¹, Franziska Mitrach¹, Christian Wölk¹, Mandy Berndt-Paetz², Michaela Schulz-Siegmund¹

¹ *Universität Leipzig, Medizinische Fakultät*, ² *Universität Leipzig, Medizinisches Forschungszentrum*

10:45 **Filament morphology and surface functionalization of braided PCL scaffolds for ligament tissue engineering**

Caroline Emonts¹, Benedict Bauer¹, Maximilian Praster², Christian D. Weber², Mersedeh Tohidnezhad³, Thomas Gries¹

¹ *Department of Medical Textiles, Institut für Textiltechnik, RWTH Aachen University*, ² *Department of Orthopaedics, Trauma and Reconstructive Surgery, RWTH Aachen University Hospital*, ³ *Department of Anatomy and Cell Biology, RWTH Aachen University Hospital*

11:00 **High resolution patterns for the dynamic study of cell membrane receptor interaction through nanocontact printing**

Ajisha Chathyattu, Maria Florencia Sanchez

University of Münster, European Institute for Molecular Imaging

11:15 **AFM analysis of bacterial adhesion on biofunctionalized implant surfaces**

Chaymae Boukari¹, Katharina Doll-Nikutta², Meike Stiesch³, Michael Veith⁴

¹ *Hannover Medical School/Westphalian University of Applied Sciences*,

² *Hannover Medical School/Centre for Biomedical Engineering, Implant Research and Development (NIFE)*, ³ *Hannover Medical School*,

⁴ *Westphalian University of Applied Science Recklinghausen*

Coffee Break (Large Seminar Room)

11:30

Biofabrication II (HS 3)

Session chairs: Maria Regato Herbelli and Andreas Blaeser

11:45 **Scaffold architectures harnessing cellular self-organization for 3D tissue engineering**
Keynote

Ansgar Petersen¹, Stephanie Diederich², Nora Gaertner², Erik Brauer³

¹ *Berlin Institute of Health (BIH) at Charité*, ² *Berlin Institute of Health (BIH) at Charité*, ³ *Humboldt-Universität zu Berlin*

12:00 **Ultrasound manipulation for angiogenesis**

Oscar O'Dwyer Lancaster-Jones, Russell Quinn, Niloofar Khoshdel Rad, Andrea Frank, Daniela Duarte Campos

Zentrum für Molekulare Biologie der Universität Heidelberg

- 12:15** **The α C chain of fibrinogen mediates sodium phosphate-induced nanofiber assembly**
Antoine Eyram Kwame¹, Aparna Sai Malisetty², Yevhenii Stohnii³, Yevhenii Kucheriavyy³, Daria Korolova, Lucio Colombi Ciacchi², Volodymyr Chernyshenko³, Susan Köppen-Hannemann², Dorothea Brüggemann¹
¹ Hochschule Bremen, ² City University of Applied Sciences, ³ National Academy of Sciences of Ukraine
- 12:30** **A biohybrid material strategy for miniaturised paediatric valve design**
Selina Sonntag
RWTH Aachen University, Institute of Applied Medical Engineering
- 12:45** **Programmable synthetic vesicles enable sustained growth factor delivery for keratocyte differentiation in 3D bioprinted corneal constructs**
Alexandre Taoum, Ole Thaden, Antonette Jessica Arunkumar, Philipp Scheulen, Daniela Duarte Campos
ZMBH, Heidelberg University

Ceramics and Bioglasses (HS 4)

Session chairs: Aldo Boccaccini and Uwe Gbureck

- 11:45** **Enhancing cytocompatibility and osteogenic differentiation via an optimized ratio of copper/strontium-doped mesoporous bioactive glass nanoparticles**
Keynote
Poh Soo Lee ¹, Hannah Kissel², Leif Riemenschneider³, Sena Harmanci², Stephanie Klinghammer³, Gianaurelio Cuniberti³, Hans-Peter Wiesmann¹, Aldo Roberto Boccaccini², Vera Hintze¹
¹ TUD Dresden University of Technology, Institute of Materials Science, Chair of Biomaterials, ² University of Erlangen-Nuremberg, ³ TUD Dresden University of Technology, Institute of Materials Science, Chair of Materials Science and Nanotechnology
- 12:00** **Gallium-modified mesoporous bioactive glass as antibacterial delivery system**
Franz Kopelmann¹, Richard Frank Richter¹, Corina Vater¹, Reinhard Örtel², Nancy Engel², Paula Korn³, Michael Gelinsky¹, Anja Lode¹, Vera Todorovic (Guduric)¹
¹ Centre for Translational Bone, Joint and Soft Tissue Research, Faculty of Medicine and University Hospital Carl Gustav Carus, TU Dresden, Dresden, ² Institute of Clinical Pharmacology, Faculty of Medicine, TUD Dresden, Dresden, ³ Department of Oral and Maxillofacial Surgery, University Hospital Carl Gustav Carus, TUD Dresden
- 12:15** **Concentration-dependent dual effect of bioactive glass on osteoblast and bacteria: The need for consistent experimental conditions**
Zhaorui Jin¹, Bolaji J. Samuel², Georg Matziolis², Victoria Horbert², Delia S. Brauer¹
¹ Otto Schott Institute of Materials Research, Friedrich Schiller University, Jena, ² University Hospital Jena, Campus Eisenberg, Waldkliniken Eisenberg

12:30 **Effect of protein loading strategy and granulation on octacalcium phosphate-based delivery systems**
Meike Liersch, Michael Hacker
Heinrich Heine Universität Düsseldorf

12:45 **3D-printed surface-treated PCL fiber reinforced calcium phosphate cement for bone regeneration**
Sadia Zakir Jangda¹, Salman Muhammad Ilyas¹, Benjamin Kruppke², Franziska Alt¹
¹ *Dresden University of Technology (TUD), Dresden*, ² *Institute for Bioprocessing and Analytical Measurement Techniques e.V. Heilbad Heiligenstadt. Institute for Organic and Macromolecular Chemistry, Friedrich Schiller University Jena*

Lunch Break (Cafeteria)

13:00

Plenary Talk (HS 3)

Session chair: Horst Fischer

14:00 **Holographic biofabrication with sound and light**
Kai Melde
*Research Group Holographic Tools for Biofabrication
Institute for Molecular Systems Engineering and Advanced Materials
Heidelberg University*

Coffee Break (Large Seminar Room)

14:45

In Vitro Models I (HS 3)

Session chairs: Kai Melde and Dominik Egger

15:00 **Retinal mechanobiology: Biomaterial platforms to dissect mechanical homeostasis in space and time**
Jacopo Di Russo
RWTH Aachen University Hospital & DWI Leibniz-Institute for Interactive Materials, Aachen

15:15 **A configurable periosteum-inspired platform orchestrates spatiotemporal osteogenic-vasculogenic coupling**
Yakui Liu¹, Xinggui Tian², Anne Bernhardt¹, Anja Lode¹, Max von Witzleben¹, Ege Kirbas¹, Stefan Zwingenberger², Michael Gelinsky¹
¹ *Center for Translational Bone, Joint and Soft Tissue Research, University Hospital Carl Gustav Carus at TUD Dresden University of Technology*, ² *Center for Orthopaedic, Trauma Surgery and Rehabilitation Medicine, University Medicine Greifswald*

15:30 **Neuronal growth guidance within a hydrogel using standing acoustic waves**
Mira Johanna Ritter, Steyfan Sivarajah, Horst Fischer
Department of Dental Materials and Biomaterials Research, RWTH Aachen University Hospital

- 15:45** **A physiologic 3D GelMA in vitro model for unbiased MSC isolation: Preserving native heterogeneity and reducing culture-induced stress**
Nali Hussein¹, Cornelius Miller¹, Yvonne Roger², Letizia Venturini³, Michael Stadler³, Sophia Rudolf¹, Andrea Hoffmann², Dominik Egger¹
¹ Institute of Cell Biology and Biophysics, Leibniz University Hannover
² Clinic for Orthopedic Surgery, Biological Basics for Biohybrid Implants, Hannover Medical School ³ Clinic for Hematology, Hemostaseology, Oncology and Stem Cell Transplantation, Hannover Medical School
- 16:00** **Diabetes-associated host dysregulation at the peri-implant tissue interface in an immunocompetent 3D cell culture model**
Tayyaba Nawaz, Muhammad Imran Rahim, Raunak Lohar, Hermann Haller, Meike Stiesch
Hannover Medical School

Drug Delivery (HS 4)

Session chairs: Henning Menzel and Tomasz Jüngst

- 15:00** **Multifunctional enzyme-responsive micellar implant coatings based on chitosan-g-PCL copolymers with antimicrobial polymer-peptide brushes for smart drug delivery**
Keynote Oliver Hergert¹, Andrew Boden², Eric Hanssen³, Peter Kingshott², Henning Menzel¹
¹ TU Braunschweig, ² Swinburne University of Technology, Melbourne, Australia, ³ University of Melbourne, Australia
- 15:15** **Electrostatically stabilized gelatin-based microneedles for transdermal drug delivery**
Hannah Stumpf, Paula Marie Schindler, Hanna Koch, Cedric Wilden, Mathias Hohl, Matthias W. Laschke, Emmanuel Ampofo-Wilhelm, Thomas Tschernig, Sandra Rother
Uni des Saarlandes
- 15:30** **Localized rosmarinic acid delivery for melanoma treatment using glycosaminoglycan-functionalized gelatin methacryloyl microneedles**
Paula Marie Schindler¹, Hannah Stumpf¹, Regina Sergeeva¹, Hanna Koch², Matthias W. Laschke², Emmanuel Ampofo-Wilhelm², Mathias Hohl³, Thomas Tschernig⁴, Sandra Rother¹
¹ Institute of Biophysics, Center of Integrative Physiology and Molecular Medicine, Saarland University, ² Institute for Clinical and Experimental Surgery, Saarland University, ³ Department of Internal Medicine III - Cardiology, Angiology and Intensive Care Medicine, Saarland University Hospital, Saarland University, ⁴ Institute of Anatomy and Cell Biology, Saarland University
- 15:45** **Synthesis and characterization of ultrasmall gold nanoparticles functionalized with AngioPep-2 and Doxorubicin for targeted drug delivery**
Sevval Efe Celik¹, Kateryna Loza¹, Marc Heggen², Matthias Eppel¹
¹ University of Duisburg-Essen, ² Forschungszentrum Jülich GmbH

- 16:00** **Controlled release of drugs out of multi-material-constructs for intraarterial application**
Maurice Simon¹, Florian Mattern¹, Lina Tschauder¹, Johannes Braig¹, Anna Fleischer², Michael Bartolf-Kopp¹, Tomasz Jüngst³
¹ Universität Würzburg, Universitätsklinikum Würzburg, ² Universitätsklinikum Würzburg, ³ Würzburg University

Coffee Break (Large Seminar Room)

16:15

Rapid Fire (HS 3)

Session chairs: Jochen Salber and Alicia Fernández Colino

Information about the co-authors and their affiliations for the studies presented in the 'Rapid Fire' session can be found in the 'Posters' section of the program booklet.

- 16:30** **3D Optical Fiber Assisted Bioprinting (OFAB), a novel light-based 3D bioprinting system capable of printing high cell concentration and opaque materials (Poster 1)**
[Maximilian Pfeifle](#)
- 16:33** **Combining acoustophoresis and in situ bioprinting for micropatterned tissue constructs (Poster 2)**
[Mario Wisbar](#)
- 16:36** **Development of tubular grids for colorectal mucosal crypt engineering via melt electrowriting and shape-memory polymers poly(alkylene terephthalate)s (Poster 3)**
[Luis Larrea Murillo](#)
- 16:39** **Fiber-reinforced hydrogel bioinks for reproducible anisotropic tissue engineering (Poster 4)**
[Zan Lamberger](#)
- 16:42** **The OpTubator: A novel tool for real-time four-dimensional optical maturation assessment of biofabricated constructs (Poster 5)**
[Julian Bauer](#)
- 16:45** **Ready-to-use bioinks for use in space missions – impact of composition and storage temperature on printability and cell viability (Poster 6)**
[Anja Lode](#)
- 16:48** **Modular building blocks created with volumetric printing for complex tubular model systems (Poster 7)**
[Michael Bartolf-Kopp](#)
- 16:51** **Development of drop-on-demand bioprinting of glioblastoma spheroids in alginate/GelMA bioinks (Poster 9)**
[Rainer Detsch](#)

- 16:54** **DoE-based investigation of pea protein granular hydrogel fabrication by different fragmentation methods (Poster 16)**
[Sofia Mokina](#)
- 16:57** **Salt-dependent co-assembly of fibrous fibrinogen-collagen scaffolds for skin tissue engineering (Poster 17)**
[Titinun Nuntapramote](#)
- 17:00** **In vitro 3D model of a metastatic bone marrow niche in neuroblastoma (Poster 18)**
[Sara Andriotto](#)
- 17:03** **Development of a 3D oriented material construct to establish an innervated skin model (Poster 19)**
[Xin Yang](#)
- 17:06** **Metabolites and local pH in dysbiotic oral multispecies in vitro biofilms over time (Poster 20)**
[Nils Heine](#)
- 17:09** **Evaluation of circulating cell adhesion to endothelialized microvascular networks in 3D hydrogels (Poster 21)**
[Teresa Gandziorowski](#)
- 17:12** **Acoustic patterning of anisotropic multicellular cardiac tissues (Poster 22)**
[Nilooofar Khoshdel Rad](#)
- 17:15** **Topography matters: Evaluating implant surfaces in vitro (Poster 25)**
[Alexander Sieberath](#)
- 17:18** **Development of an anaerobic flow chamber for in vitro modeling of periodontal pockets and biomaterial-biofilm interactions (Poster 26)**
[Celine Guder](#)
- 17: 21** **Engineering a biomimetic GelMA/elastin/hyaluronic acid dermis equivalent toward a 3D-bioprinted melanoma skin model (Poster 27)**
[Shakti Mara Schröder](#)
- 17:24** **Hyaluronic acid hydrogels as a tuneable matrix for neuroblastoma spheroid invasion modelling in 3D (Poster 32)**
[Srijeeta Nag Biswas](#)
- 17:27** **Surface functionalization of an ultra-low stiff alloy manufactured by selective laser melting to overcome the clinical problem of stress shielding (Poster 33)**
[Pia Mülders](#)
- 17:30** **Surface biofunctionalization of dental implants (Poster 34)**
[Evelin Miller](#)
- 17:33** **From composition to performance: The impact of Na₂O/CaO ratio in bioactive glasses (Poster 37)**
[Meixin Su](#)

- 17:36** **Analysis of biomimetic design flexibility for braided resorbable structures for synthetic ligament augmentation (Poster 38)**
Julietta Bandel
- 17:39** **Tubular PCL MEW scaffolds for intravascular drug delivery: A study of degradation (Poster 39)**
Lina Tschauder
- 17:42** **Hybrid human acellular dermis grafts reinforced with 3D-printed thermoplastics (Poster 40)**
Till Grandjean
- 17:45** **Regenerated silk fibroin fibers for biohybrid medical textiles and implants (Poster 41)**
Athanasios Papakonstantinou
- 17:48** **Impact of template material, temperature, and ethanol supplementation on the structural and mechanical properties of bacterial nanocellulose vascular grafts (Poster 42)**
Saeed Sharifpoor Kermani
- 17:51** **Exploring bioactive glass as novel tools for phage delivery (Poster 47)**
Alessandra Bosc
- 17:54** **An integrative genomic, developmental and silk property analysis of bombyx mori (Poster 49)**
Maximilian C. Urban
- 17:57** **Bridging mechanical performance and endothelial compatibility in next-generation bioabsorbable iron-based flow diverters (Poster 50)**
Alessandra Di Lorenzo

Poster Session I (Large Seminar Room)

18:00-19:30

Plenary Talk (HS 3)

Session chair: Horst Fischer

9:00 **Biengineering mechanically actuated organoids**

Adrian Ranga

Department of Mechanical Engineering, BioMechanics, KU Leuven, Belgium

Coffee Break (Large Seminar Room)

9:45

Spheroids and Organoids (HS 3)

Session chairs: Adrian Ranga and Jacopo Di Russo

10:00 **Scalable trilineage differentiation of encapsulated human mesenchymal stem/stromal cells into functional microtissues**

Keynote

Julia Dreger¹, Anneke Harms¹, Dimosthenis Giannopoulos², Scharon Kraudelt³, Leon Budde³, Thomas Seel³, Philipp J. Thurner², Jan Hansmann⁴, Dominik Egger¹

¹ *Leibniz University Hannover, Institute of Cell Biology and Biophysics,*

² *Technical University Vienna, Institute of Lightweight Design and Structural Biomechanics,* ³ *Leibniz University Hannover, Institute of Mechatronic Systems,* ⁴ *University of Applied Sciences Würzburg, Schweinfurt/Faculty of Electrical Engineering*

10:15 **Orthogonally crosslinked ovoprotein microgels for spheroid-based vascularized and mineralized tissue biofabrication**

Suihong Liu

Penn State, USA and Maastricht University, The Netherlands

10:30 **A phantom cell platform as tool for mechanobiology and mechano-electrical coupling**

Felix Reul¹, Tanishka Watts¹, Cédric Bergerbit², Vasudha Turuvekere Krishnamurthy¹, Alexandra Raab¹, Yuxin Ji¹, Valeria Criscuolo³, Francesca Santoro³, Laura De Laporte², Jacopo Di Russo¹

¹ *Institute of Molecular and Cellular Anatomy, RWTH Aachen University, DWI-Leibniz-Institute for Interactive Materials, Aachen,* ² *DWI-Leibniz-Institute for Interactive Materials, Aachen, Department of Advanced Materials for Biomedicine (AMB), CBMS, Center for Biohybrid Medical Systems, AME, Institute of Applied Medical Engineering, RWTH Aachen University,* ³ *Neuroelectronic Interfaces, Faculty of Electrical Engineering and IT, RWTH Aachen University, Aachen, Institute of Biological Information Processing IBI-3, Forschungszentrum Jülich*

10:45 **Microporous annealed particle scaffolds for high-throughput production of light-responsive human photoreceptor cells**

Vasudha Turuvekere Krishnamurthy¹, Laura Klasen², Ramin Nasehi², Lisa Jungbluth³, Eva Miriam Buhl³, Si-Ting Wu³, Alice Podesta³, Björn Kampa³, Laura De Laporte², Jacopo Di Russo¹

¹ *Uniklinik Aachen, DWI-Leibniz Institute for Interactive Materials,* ² *DWI, Leibniz Institute for Interactive Materials, Aachen, Institute for Technical and Macromolecular Chemistry, RWTH Aachen* ³ *Uniklinik Aachen*

11:00 Electrical stimulation of osteoblast-like MG-63 cells and spheroids using novel electrically active implants featuring conductive hydrogels

Theres Fersterer¹, Melissa Mattern¹, Kai Budde-Saggert², Lam Vien Che², Nils Arbeiter², Henning Bathel², Meike Bielfeldt¹, Hannah Kissel³, Sascha Spors², Henrike Rebl¹

¹ Rostock University Medical Center, ² Rostock University, ³ Friedrich-Alexander-Universität Erlangen-Nürnberg

Free Topics (HS 4)

Session chairs: Stephan Barcikowski and Ina Prade

10:00 Metal and alloy nanoparticles as radio- enhancers in proton therapy

Keynote Christoph Rehbock¹, Lars Krenz², Carina Behrends³, Sandra Willecke¹, Feline Heinzelmann³, Johannes Esser⁴, Christian Bäumer³, Beate Timmermann⁴, Stephan Barcikowski⁵

¹ Universität Duisburg-Essen, ² Universität Duisburg-Essen, ³ West German Proton Therapy Centre Essen (WPE), West German Cancer Center (WTZ), Department of Physics, TU Dortmund University, German Cancer Consortium (DKTK), ⁴ West German Proton Therapy Centre Essen (WPE), West German Cancer Center (WTZ), German Cancer Consortium (DKTK), Department of Particle Therapy, University Hospital Essen, ⁵ Universität Duisburg Essen

10:15 Unexpected variability in collagen modifications and α -chain stoichiometry revealed by mass spectrometry

Birgit Voigt, Michael Meyer, Ina Prade
FILK Freiberg Institute gGmbH

10:30 Surgical environment mismatch in translational research: Filtering false signals for preclinical evaluation of musculoskeletal biomaterials

Yu Sun¹, Olga Will², Heike Helmholz³, Jan-Bernd Hövener², Regine Willumeit-Römer⁴

¹ Helmholtz-Zentrum Hereon, ² University Hospital Schleswig-Holstein (UKSH), Kiel University, ³ Helmholtz Zentrum Hereon, ⁴ Helmholtz-Zentrum Hereon

10:45 A biomimetic silk-based intervertebral disc implant combining an embroidered annulus fibrosus with a silk fibroin-hyaluronic acid hydrogel nucleus pulposus

Michael Wöltje¹, Alexandra Richter¹, Franziska Oesterlen¹, Benjamin Gantenbein², Chokri Cherif¹

¹ Institute of Textile Machinery and High Performance Material Technology, TUD Dresden University of Technology, ² Tissue Engineering for Orthopaedics and Mechanobiology, Bone & Joint Program, Department for BioMedical Research (DBMR), Medical Faculty, University of Bern, Department of Orthopaedic Surgery and Traumatology, Inselspital, Bern University Hospital, Switzerland

11:00 Data-driven upscaling of cell-derived extracellular matrix production using machine learning and design of experiments

Svenja Nellinger, Sara Ruggieri, Birk Achenbach, Petra Juliane Kluger
University of Stuttgart

Coffee Break (Large Seminar Room)

11:15

In Vitro Models II (HS 3)

Session chairs: Rasika Daware and Christoph Kuckelkorn

11:30 Towards bioprinting of complex bone marrow in vitro models

Keynote Jan Mathis Hornbostel, Jonas Nolte, Cornelia Lee-Thedieck
Leibniz University Hannover

11:45 A scalable microfluidic platform for perfusable 3D tissue and disease modeling

Annika Reisbitzer¹, Holger Rothe¹, Uwe Schirmer¹, Gerhard Hildebrand¹, Franziska Boelke², Elfi Töpfer², Claudia Gärtner², Benjamin Kruppke³
¹ Institute for Bioprocessing and Analytical Measurement Techniques e.V., Heilbad Heiligenstadt, ² microfluidic ChipShop GmbH, Jena, ³ Institut für Bioprozess- und Analysemesstechnik e.V., Heilbad Heiligenstadt, Institute for Organic and Macromolecular Chemistry, Friedrich Schiller University Jena

12:00 NMR-compatible 3D infection model for real-time monitoring of immunometabolic reprogramming

Markus Helbig, Sylwia Barker, Marcel Utz, Annamarija Raic
Karlsruhe Institute of Technology

12:15 3D hydrogel-based reconstruction of adipose niche for investigating MSC identity and heterogeneity

Sofie Todt¹, Maike Keck², Dominik Egger¹
¹ Institute of Cell Biology and Biophysics, Leibniz University Hannover, ² Agaplesion Diakonieklinikum Hamburg

12:30 Engineering vascularized human airway tissues for disease modeling and personalized medicine

Effie Tschlia, Hannah Kubiza, Felix Wehrmann, Melanie Johrden, Tiana Tietz, Emine Kahraman, Julian Gonzalez-Rubio, Christian Cornelissen, Anja Lena Thiebes
RWTH Aachen University, Institute of Applied Medical Engineering

Surface Functionalization and Coatings II (HS 4)

Session chairs: Hanna Hartmann and Jana Markhoff

11:30 Laser-induced forward transfer for printing ECM-based molecular cues to promote spatially selective cell adhesion

Keynote Elke Bremus-Köbberling¹, Nadine Nottrodt¹, Jan Hunker², Peter Linder², Matthias Gossmann²
¹ Fraunhofer Institute for Lasertechnology, ² innoVibro GmbH, Jülich

11:45 A customizable procedure to coat metal implants with antibiotics-loaded polylactide

Julius Franke, Matthias Epple
Universität Duisburg-Essen

- 12:00** **Biological impact on endothelial cells following stimulation by immobilized growth factors**
Lisa Marie Langner¹, Kateryna Loza², Christian Hiepen³, Matthias Epple², Michael Veith¹
¹ Westphalian University of Applied Science, Recklinghausen, ² University of Duisburg-Essen, ³ Westphalian University of Applied Sciences, Recklinghausen
- 12:15** **Peptide adsorption as a strategy for functionalizing silk-based biomaterials**
Franziska Schmitz¹, Christoph Hellmann¹, F. Philipp Seib²
¹ Fraunhofer Institute for Molecular Biology and Applied Ecology IME, ² Friedrich Schiller University Jena, Institute of Pharmacy
- 12:30** **Development of a 3D cell culture system using fibre-modulated bioink for future drug testing**
Christian Freudigmann¹, Amrei Gerull², Amita Shinde³, Johanna Vetter⁴, Andreas Blaeser⁴, Manfred Schmolz², Hanna Hartmann¹
¹ NMI Natural and Medical Sciences Institute at the University of Tübingen, Reutlingen, ² HOT Screen GmbH, Reutlingen, ³ Black Drop Biodrucker GmbH, Darmstadt, ⁴ IDD Institute of printing, science and technology, Technische Universität Darmstadt

Lunch Break (Cafeteria)

12:45

Plenary Talk (HS 3)

Session chair: Horst Fischer

- 13:45** **Interactive and anisometric colloidal building blocks for regenerative medicine and tissue engineering**
Laura De Laporte
DWI Leibniz Institute for Interactive Materials, Department of Macromolecular Materials for Medicine, RWTH Aachen University

Coffee Break (Large Seminar Room)

14:30

Extracellular Matrix Substitutes (HS 3)

Session chairs: Laura De Laporte and Cornelia Lee-Thedieck

- 14:45** **Generation of ECM-based microcapsules for controlled stem cell differentiation**
Keynote Tom Seltsmann¹, Christine Selhuber-Unkel², Sadaf Pashapour², Elisabetta Ada Cavalcanti-Adam³, Karin Jacobs⁴
¹ Uni Heidelberg - IMSEAM, ² Universität Heidelberg, ³ Universität Bayreuth, ⁴ Universität Saarland

- 15:00** **Tailored hydrogel blends based on fibrinogen, collagen and hyaluronan enable co-cultivation of four different cell types to create functional liver-like tissue**
Friederike Götz, Leon Ryu Breulmann, Roswitha Davtala, Valentyna Makohin, Horst Fischer
Department of Dental Materials and Biomaterials Research, RWTH Aachen University Hospital
- 15:15** **Integration of tissue engineered pre-vascularized mucosa equivalents in vivo**
Martin Heller, Maxi Bischoff, Annette Hasenburg, Walburgis Brenner
Universitätsmedizin der Johannes Gutenberg-Universität Mainz
- 15:30** **Zebrafish as an in vivo model for assessing collagen-based biomaterials in wound healing**
Hamideh Karimi
Ankara University, Turkey
- 15:45** **Albucol: UVA-stabilized collagen localization controls osteoblastic response beyond albumin scaffolds**
Miryang Klink¹, Antonia Straub¹, Jessica Pfannstiel¹, Christian Freudigmann¹, Jordan Beuron², Philippe Lavalle², Xin Xiong¹
¹ NMI Natural and Medical Sciences Institute at the University of Tübingen, ² Strasbourg University, France

Advanced Polymeric Biomaterials I (HS 4)

Session chairs: Caroline Emonts and Stefan Jockenhövel

- 14:45** **Mechanistic dissection of the antimicrobial polyurethane NHP407-g-Poly(ILM-Br)**
Keynote
Jochen Salber¹, Patricia Varela², Subha Purkayastha², Monica Boffito², Susanna Sartori², Melissa Vasquez-Hernandez³, Julia Bandow³, Gianluca Ciardelli²
¹ Knappschaft Kliniken Universitätsklinikum Bochum, Ruhr-Universität Bochum/Experimentelle Chirurgie, ² Politecnico di Torino/Department of Mechanical and Aerospace Engineering (DIMEAS), Italy, ³ Ruhr-Universität Bochum/Lehrstuhl für Angewandte Mikrobiologie
- 15:00** **Layer-by-layer photocrosslinked silk fibroin flared tubular structures for endoluminal arterial anastomosis**
Mariana Rodrigues¹, Benedetta Isella², Nicole Schaaps³, Bernhard Hruschka³, Alexander Löwen¹, Felix Vogt³, Christian Uhl³, Stefan Jockenhövel¹, Alexander Kopp²
¹ Institut für Angewandte Medizintechnik, RWTH Aachen, ² Fibrothelium GmbH, Aachen, ³ RWTH Uniklinik Aachen
- 15:15** **Glycosaminoglycan-functionalized hydrogels enable sustained tissue inhibitor of metalloproteinase-3 activity for extracellular matrix stabilization**
Paula Marie Schindler¹, Gloria Ruiz-Gómez², M. Teresa Pisabarro², Stefan Rupp¹, Cedric Wilden¹, Mathias Hohl¹, Thomas Tschernig¹, Selina Wrublewski¹, Matthias Hannig¹, Sandra Rother¹
¹ Universität des Saarlandes, Medizinische Fakultät, ² Technische Universität Dresden

- 15:30** **Development of biomimetic nanofibrous structures inspired by lotus leaf and shark skin via electrospinning**
Marketa Hujerova, Radek Jirkovec, Thabang Thekiso, Leos Petrzilka, Zdenek Pliva
Technical University of Liberec, Czech Republic
- 15:45** **Mechanical performance of biodegradable PCL-braided scaffolds for ACL augmentation under cyclic physiological walking and running loads**
Julietta Bandel¹, Saskia Hesse¹, Benedict Bauer¹, Viktoria Kiaulehn², Maximilian Praster², Christian D. Weber², Thomas Gries¹, Caroline ¹
¹ *Department of Medical Textiles, Institut für Textiltechnik, RWTH Aachen University,* ² *Department of Orthopaedics, Trauma and Reconstructive Surgery, RWTH Aachen University Hospital*

Coffee Break (Large Seminar Room)

16:00

DGBM General Assembly (HS 3)

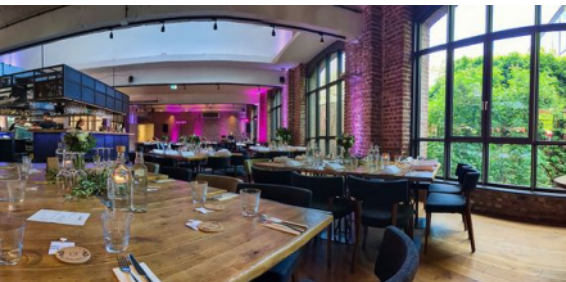
16:15-17:45

Poster Session II (Large Seminar Room)

16:15-17:45

Social Evening (Restaurant La Fabrik)

19:00-23:00



The social evening with the conference dinner will take place at the restaurant

La Fabrik

Bachstraße 20
52066 Aachen

Bus line "3A" from Uniklinik to station "Normaluhr".

Biofabrication III (HS 3)

Session chairs: Petra Kluger and Anja Lode

9:00 **Soft biomaterials providing organization freedom to cells**

Keynote

João Mano

University of Aveiro, Portugal

9:15 **Integrating vibrational characterization with multiscale structural mechanics in electrospun bundles for tendon/ligament and enthesis regeneration**

Alessandra Di Lorenzo¹, Tim ten Brink², Gregorio Marchiori³, Alessandro Gambardella³, Gianluca Giavaresi³, Lorenzo Moroni², Martijn van Griensven², Alberto Sensi²

¹ MERLN Institute for Technology-Inspired Regenerative Medicine, Maastricht University, The Netherlands, Institute of Applied Medical Engineering, RWTH Aachen University, ² MERLN Institute for Technology-Inspired Regenerative Medicine, Maastricht University The Netherlands, ³ IRCCS Istituto Ortopedico Rizzoli, Bologna, Italy

9:30 **Ultrasound stimulation of architected materials with decoupled properties for osteochondral regeneration**

Ebrahim Yarali, Aleksandra Predeina, Carlos Mota, Lorenzo Moroni

MERLN Institute for Technology-Inspired Regenerative Medicine, Department of Complex Tissue Regeneration, Maastricht University, The Netherlands

9:45 **Bioreactor-based mechanical stimulation of cell differentiation on plant-derived scaffold accelerates tissue maturation for cultured meat production**

Kuo-Hui Chiu, Stefan Schillberg, Che Julius Ngwa

Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Aachen

10:00 **Cellular-derived extracellular matrix as a powerful tool to enhance biocompatibility and bioactivity in hydrogels**

Sara Ruggieri, Svenja Nellinger, Leonie Riek, Petra Juliane Kluger

University of Stuttgart IGVP, Fraunhofer IGB, Stuttgart

Advanced Polymeric Biomaterials II (HS 4)

Session chairs: Ansgar Petersen and Ramin Nasehi

9:00 **Advanced biohybrid cardiovascular implants enabled by protein-engineered elastin**

Keynote

Alicia Fernández Colino

Uniklinik RWTH Aachen University

9:15 **Embroidery-based tissue engineering: Biodegradable scaffolds for tendon sheath functional restoration**

Elena Maria Cerciello¹, Cindy Elschner¹, Robert Tonndorf¹, Christina Scheffler², Markus Stommel³

¹ Leibniz Institut für Polymerforschung Dresden e.V., ² Division Polymer Materials Engineering, Leibniz Institut für Polymerforschung Dresden e.V., Institute of Construction Materials, Dresden University of Technology (TUD), ³ Division Polymer Materials Engineering, Leibniz Institut für Polymerforschung Dresden e.V., Institute of Materials Science, Dresden University of Technology (TUD)

- 9:30** **Polycarbonate-based non-isocyanate polyurethanes (NIPUs) for innovative (resorbable) textile implants in medical application**
Hannah Flock¹, David Wienen¹, Christoph Herfurth², Jörg Bohrisch², Thomas Gries¹
¹ ITA, Institut für Textiltechnik of RWTH Aachen University, ² IAP, Fraunhofer-Institut für Angewandte Polymerforschung
- 9:45** **Degradation and reinforcement of methacrylated collagen by integration of B. subtilis spores**
Leonie Maria Holderbach¹, Robin Maatz¹, Catherine Taylor Nordgård², Johannes Kabisch², Andreas Blaesser¹
¹ Technical University Darmstadt, ² Norwegian University of Science and Technology
- 10:00** **A novel bioresorbable dual-layer silk fibroin-collagen vascular graft with tailored luminal and outer surface architecture**
Maike Bittner¹, Benedetta Isella², Hans Leemhuis², Alexander Kopp², Ted J. Vaughan¹
¹ University of Galway, Ireland, ² Fibrothelium GmbH, Aachen

Coffee Break (Large Seminar Room)

10:15

Biofabrication IV (HS 3)

Session chairs: Michael Gelinsky and Rainer Detsch

- 10:30** **Exploiting bioprinted silk fibroin-based auxetic metamaterials as 3D in vitro models for cardiovascular diseases**
Keynote Eugenia Spessot, Francesca Agostinacchio, Annalisa Tirella, Antonella Motta, Devid Maniglio
University of Trento, Italy
- 10:45** **Bone-like bioinks containing collagen and nano HAP support the osteoblast-to-osteocyte transition in bioprinted constructs**
Anne Bernhardt, Dolphee Khurana, Johannes Windisch, Chinaithi Narzary, Greeshma Thrivikraman
Center for Translational Bone, Joint and Soft Tissue Research, University Hospital Carl Gustav Carus at TUD Dresden
- 11:00** **Methylcellulose-driven shape morphing of 3D printed hydrogel blends into tubular constructs**
Max von Witzleben, Emily Fichter, Nathaly Chicaiza Cabezas, Anne Bernhardt, Anja Lode, Michael Gelinsky
TU Dresden
- 11:15** **Multi-channel systems for blood and lymphatic vascular modeling**
Franz Moser, Vincent Borree, Isabel Geroneit, Tomasz Jüngst
Universitätsklinikum Würzburg

11:30 Bioprinted platform for neuronal circuit formation and glioblastoma disease modeling

Camila Vacas Betancourt¹, Pan Suwannakot², Nicoletta Murenu¹, Zan Lamberger¹, Jörg Tessmar¹, Rainer Detsch³, Torsten Blunk¹, Mateo Andrade¹, Carmen Villmann¹

¹ Universitätsklinikum Würzburg, ² Arto Hardy Family Biomedical Innovation Hub, ³ FAU Erlangen-Nürnberg, Institute of Biomaterials

In Vitro Models III (HS 4)

Session chairs: Anja Lena Thiebes and Benjamin Kruppke

10:30 Electrospun bacteria-loaded polyethylene oxide membranes: A tunable platform for incorporating microbiom into in vitro tissue models

Keynote

Svea Sachse, Hanen Ferjani, Torsten Walter, Hannah Zeihe, Sabrina Hauspurg

INNOVENT e. V. Technologieentwicklung, Jena

10:45 A multicellular 3D in vitro ventricle model with integrated check valves for pulsatile flow generation

Christoph Kuckelkorn¹, Zenon Walz¹, Ebru Aksoy², Yajuan Jiang², Kurt Pfannkuche², Horst Fischer¹

¹ Department of Dental Materials and Biomaterials Research, RWTH Aachen University Hospital, ² University of Cologne, Faculty of Medicine and University Hospital Cologne

11:00 3D tumor-spheroid and perfusable bioreactor models assessing CAF phenotypes, imaging fibrosis and modeling metastasis

Rasika Daware¹, Alexandra Raab¹, Lena Hahnfeld², Friederike Götz³, Jochen Maurer², Horst Fischer³, Alexandros Marios Sofias¹, Fabian Kiessling¹, Twan Lammers¹, Federica De Lorenzi¹

¹ Institute for Experimental Molecular Imaging (ExMI), University Hospital Aachen, ² Department of Gynecology and Obstetrics, University Hospital Aachen, ³ Department of Dental Materials and Biomaterials Research, RWTH Aachen University Hospital

11:15 Developing skin equivalents including a physiological topography and human induced pluripotent stem cell derived keratinocytes and fibroblasts

Ronja Friede, Elisabeth Rehbein-Bode, Shakti Mara Schröder, Sebastian Schröder

Institute for Bioprocessing and Analytical Measurement Techniques e. V., Heiligenstadt

11:30 A perfused 3D in vitro model of vascularized muscle tissue to investigate mesoangioblast transendothelial migration

Klara Landi¹, Christoph Kuckelkorn¹, Michael Weber¹, Roswitha Davtalab¹, Anne Bigot², Horst Fischer¹

¹ Department of Dental Materials and Biomaterials Research, RWTH Aachen University Hospital, ² Sorbonne Université, Inserim, Institut de Myologie, Centre de Recherche en Myologie, Paris, France

Closing Ceremony (HS 3)

11:45-12:00

Posters

All posters will be on display in the Large Seminar Room throughout the conference. The official poster sessions are scheduled for Thursday, 24 September from 18:00 to 19:30 and Friday, 25 September from 16:15 to 17:45.

Posters marked with an asterisk (*) will also be presented as short talks (two-and-a-half minutes each) during the 'Rapid Fire Session' on Thursday, 24 September, from 16:30 to 18:00.

- P 1*** **3D Optical Fiber Assisted Bioprinting (OFAB), a novel light-based 3D bioprinting system capable of printing high cell concentration and opaque materials**
Maximilian Pfeiffle, Tomasz Jüngst
Uni Würzburg
- P 2*** **Combining acoustophoresis and in situ bioprinting for micropatterned tissue constructs**
Mario Wisbar, Daniela Duarte Campos
Universität Heidelberg
- P 3*** **Development of tubular grids for colorectal mucosal crypt engineering via melt electrowriting and shape-memory polymers poly(alkylene terephthalate)s**
Luis Larrea Murillo¹, Hannes Vandeputte², Rui Pedro Santos Silva², Florin Kluthe¹, Lenny Van Daele², Johannes Braig¹, Sandra Van Vlierberghe², Tomasz Jüngst¹, Jürgen Groll¹
¹ *Julius-Maximilians-Universität Würzburg*, ² *Ghent University, Belgium*
- P 4*** **Fiber-reinforced hydrogel bioinks for reproducible anisotropic tissue engineering**
Zan Lamberger, Gregor Lang
University Clinic Würzburg
- P 5*** **The OpTubator: A novel tool for real-time four-dimensional optical maturation assessment of biofabricated constructs**
Julian Bauer¹, Dominik Schneidereit², Paul Ritter², Oliver Friedrich¹
¹ *FAU Erlangen-Nürnberg, Institute of Medical Biotechnology (TRR225)*,
² *FAU Erlangen-Nürnberg, Institute of Medical Biotechnology*
- P 6*** **Ready-to-use bioinks for use in space missions – impact of composition and storage temperature on printability and cell viability**
Ege Kirbas, Johannes Windisch, Saimadhuvanthy Srinivas, Vainius Gagilas, Max von Witzleben, Michael Gelinsky, Anja Lode
Center for Translational Bone, Joint and Soft Tissue Research, University Hospital Carl Gustav Carus at TUD Dresden
- P 7*** **Modular building blocks created with volumetric printing for complex tubular model systems**
Michael Bartolf-Kopp, Csaba Gergely, Isabel Geroneit, Franz Moser, Lisa Galaba, Nathaly Chicaiza Cabezas, Vivien Priebe, Tomasz Jüngst
Universitätsklinikum Würzburg

- P 8** **Production of stable collagen gels: Electrocompaction versus mechanical compaction approaches**
 Peter Schyra, Laureen Feldgiebel, Chokri Cherif, Michael Wöltje
Institute of Textile Machinery and High Performance Material Technology, TUD Dresden University of Technology
- P 9*** **Development of drop-on-demand bioprinting of glioblastoma spheroids in alginate/GelMA bioinks**
 Rainer Detsch¹, Dimitrij Wist, Vanessa Mößler², Jahid Alakbarli, Reiner Strick², Aldo Roberto Boccaccini
¹ *FAU Erlangen-Nürnberg, Institute of Biomaterials*, ² *Universitätsklinikum Erlangen*
- P 10** **Conventional hydrogels dictate different fates of glioblastoma cell lines in 3D**
 Vanessa Mößler¹, Pamela L. Strissel², Jessica Faber³, Ingo Thievensen⁴, Silvia Budday³, Reiner Strick¹
¹ *Department of Gynecology and Obstetrics, Laboratory for Molecular Medicine, University Hospital Erlangen, Friedrich-Alexander University Erlangen-Nürnberg*, ² *Institute of Pathology, Department of Gynecology and Obstetrics, Laboratory for Molecular Medicine, University Hospital Erlangen, Friedrich-Alexander University Erlangen-Nürnberg (FAU)*, ³ *Institute of Continuum Mechanics and Biomechanics, Friedrich-Alexander University Erlangen-Nürnberg*, ⁴ *Department of Physics, Biophysics Group, Friedrich-Alexander University Erlangen-Nürnberg*
- P 11** **Biofabrication of a dermis model incorporating rete ridges for enhanced physiological relevance**
 Maciej Weroniczak-Balod, Horst Fischer
Department of Dental Materials and Biomaterials Research, RWTH Aachen University Hospital
- P 12** **In silico investigation of scaffold design influence on growth and remodeling in tissue-engineered biohybrid implants**
 Mahmoud Sesa¹, Jasmin Holländer², Felix Vogt³, Marek Behr⁴, Stefanie Reese², Kevin Linka¹
¹ *RWTH Aachen University, Institute of Applied Medical Engineering*, ² *RWTH Aachen University, Institute of Applied Mechanics*, ³ *University Hospital RWTH Aachen*, ⁴ *RWTH Aachen University, Chair for Computational Analysis of Technical Systems*
- P 13** **Compression properties of warp-knitted spacer fabric reinforcement and gelatin hydrogel for liver tissue engineering**
 Leonie Anna Hoffmann¹, Hannah Flock¹, Felix Müller¹, Roman M. Eickhoff², Alexandros Chrysos², Thomas Gries¹, Christian Bleilevens³, H. Tolba⁴, Caroline Emonts¹
¹ *Institut für Textiltechnik (ITA) der RWTH Aachen University*, ² *General-, Visceral-, Pediatric and Transplant Surgery, Medical Faculty, RWTH Aachen University Hospital*, ³ *Department of Anesthesiology, Medical Faculty, RWTH Aachen University Hospital*, ⁴ *Institute for Laboratory Animal Science and Experimental Surgery, Medical Faculty, RWTH Aachen University*

- P 14** **Bioprinted mucosa equivalents forming pre-vascularized structures**
Martin Heller, Kevin Stefan Gehweiler, Annette Hasenburg, Walburgis Brenner
Universitätsmedizin der Johannes Gutenberg-Universität Mainz
- P 15** **Development of a protocol for long-term stabilization of bioprinted constructs fabricated and cultured during space missions**
Nupur Sharma, Johannes Windisch, Karolina Grzempczynska, Max von Witzleben, Anja Lode, Michael Gelinsky
Center for Translational Bone, Joint and Soft Tissue Research, University Hospital Carl Gustav Carus at TUD Dresden University of Technology
- P 16*** **DoE-based investigation of pea protein granular hydrogel fabrication by different fragmentation methods**
Sofia Mokina, Gülsüm Akkan, Lukas Leimbach, Michael Hacker
Heinrich Heine University Düsseldorf
- P 17*** **Salt-dependent co-assembly of fibrous fibrinogen-collagen scaffolds for skin tissue engineering**
Titinun Nuntapramote, Jona Ebeling, Nina Graupner, Jörg Müssig, Dorothea Brüggemann
Bremen University of Applied Science
- P 18*** **In vitro 3D model of a metastatic bone marrow niche in neuroblastoma**
Sara Andriotto, Srijeeta Nag Biswas, Christoph Kuckelkorn, Mert Karpat, Michael Weber, Horst Fischer, Sanja Aveic
Department of Dental Materials and Biomaterials Research, RWTH Aachen University Hospital
- P 19*** **Development of a 3D oriented material construct to establish an innervated skin model**
Xin Yang¹, Philip Pietryszek¹, Ramin Nasehi¹, Carolina Itzin¹, Nicole Schwarz², Ziyu Gao³, Ulrich Schwaneberg⁴, Francesca Santoro⁵, Angelika Lampert⁶, Laura De Laporte⁷
¹ DWI – Leibniz-Institute for Interactive Materials, Institute for Technical and Macromolecular Chemistry, RWTH Aachen University, ² Institute of Molecular and Cellular Anatomy, RWTH Aachen University, ³ Institute of Materials in Electrical Engineering, RWTH Aachen University, ⁴ Institute of Biotechnology, RWTH Aachen University, ⁵ Neuroelectronic Interfaces, Faculty of Electrical Engineering and IT, RWTH Aachen University, ⁶ Institute of Biological Information Processing IBI-3, Forschungszentrum Jülich, ⁷ Institute of Neurophysiology, RWTH Aachen University Hospital, Scientific Center for Neuropathic Pain Research Aachen, SCNAachen, RWTH Aachen University Hospital, ⁷ DWI, Leibniz-Institute for Interactive Materials, Institute for Technical and Macromolecular Chemistry, RWTH Aachen University, Institute of Applied Medical Engineering (AME), Department of Advanced Materials for Biomedicine
- P 20*** **Metabolites and local pH in dysbiotic oral multispecies in vitro biofilms over time**
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¹ University Hospital Erlangen, ² University of Würzburg, ³ Friedrich-Alexander-University Erlangen-Nürnberg
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¹ Heidelberg University, ² University Hospital Heidelberg
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¹ Institute for Bioprocessing and Analytical Measurement Techniques e.V., ² Institut für Bioprocess- und Analysemesstechnik e. V., TU Ilmenau
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¹ *Friedrich-Alexander University Erlangen, Nürnberg*, ² *Ludwig-Maximilians University München*
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¹ *Department of Dental Materials and Biomaterials Research, RWTH Aachen University Hospital*, ² *Steel Institute IEHK RWTH Aachen*
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¹ *Westphalian University of Applied Sciences*, ² *Hannover Medical School, Westphalian University of Applied Sciences*
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- Polymers
- Living Biomaterials
- Natural Biomaterials
- Hybrid Materials
- Biohybrids

Biomaterial Applications:

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- Implants
- Extracellular Matrix Substitutes
- Organotypic Cultures and In Vitro Models
- Surface Functionalization
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- Biomaterial-associated Infections
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