conventus

Dreiländertagung of the Swiss (SSBE), Austrian (ÖGBMT) and German (VDE DGBMT) Societies for Biomedical Engineering

08.09.2025

11:00 –17:00   **DGBMT - Vorstands- und Beiratssitzung**

12.W.01

09.09.2025

08:45 –09:00   **Welcome**

EG.W.01

08:45 –18:00   **Poster Exhibition**

Foyer

09:00 –09:30   **Keynote 1**
                     Human-Robot Interaction in Nursing Care

EG.W.01

Chair   Sebastian Zaunseder (Augsburg)

09:00 –09:30   Human-Robot Interaction in Nursing Care
                     Andreas Hein (Oldenburg)

09:45 –10:45   **Focus Session**
                     FS SVMT: Development of biodegradable metals

EG.W.01

Chair   Thomas Imwinkelried (Bettlach)

                     Yaman Tunaboylu (Zurich)

09:45 –10:15	Materialentwicklung von Mg-Legierungen
	Jörg Löffler (Zürich)
10:15 –10:30	Regional and design-dependent degradation of ZX00 screws in an ovine model
	Haris Mujala (Graz)
10:30 –10:45	Influence of PEO-coating on degradation of ZX00 screws in the proximal epiphysis of juvenile sheep
	Sylvester Martin Gabalier (Graz)

09:45 –10:45 Session Biomechanics

02.O.18

Chair	Barbara Röhrnbauer (Winterthur)
	Stephen Ferguson (Zürich)
09:45 –10:00	Towards EMG-informed optimization for predicting paraspinal muscle activation in adolescents with idiopathic scoliosis
	Philippe Bähler (Bern)
10:00 –10:15	Including strain rate-dependent effects in constitutive modelling of bone
	Gabriela Gerber (Bern)
10:15 –10:30	Ultrashort time echo MRI sequence to quantify vertebral bone morphology in young adults
	Salvatore Conticello (Zürich)
10:30 –10:45	carfHemi – I*n vitro* wear test of PCU coated humeral head hemiprosthesis against VEPE glenoid implants
	Martin Angst (Winterthur)

09:45 –10:45   **Session**
Image & signal processing

02.W.18

Chair   Philippe Cattin (Allschwil)

                     Thomas Stieglitz (Freiburg im Breisgau)

09:45 –10:00   Hybrid machine learning approach for seizure detection using Hjorth
                     parameters in EEG signals
                     Szymon Siecinski (Katowice)

10:00 –10:15   Graph-based ECG analysis with explainable AI – Classifying cardiac
                     diseases and conduction disorders
                     Miriam Cindy Maurer (Göttingen)

10:15 –10:30   Distance measurement in minimally invasive surgery based on
                     instrument segmentation
                     Tim Streckert (Dortmund)

10:30 –10:45   Contactless tracking of blood pressure changes using cameras
                     Fabian Braun (Bern)

09:45 –10:45   **Focus Session**
FS New developments and advancements in
magnetic methods in medicine 1

02.S.21

Chair   Tilmann Sander-Thömmes (Berlin)

                     Johannes Vorwerk (Innsbruck)

09:45 –10:00   Rapid degaussing techniques for optimized magnetically shielded rooms
                     in MEG applications
                     Peter Koss (Freiburg)

10:00 –10:15   Magnetometer characterization – A key foundation for novel non-
                     cryogenic magnetic field sensors?
                     Eric Elzenheimer (Kiel)

| 10:15 –10:30 | Towards multi-class optically pumped magnetometer-based brain-computer interfaces |
| | Jan Zerfowski (Berlin) |

| 10:30 –10:45 | Comparison of sensor localization methods for optically pumped magnetometers |
| | Paul Anders (Berlin) |

09:45 –10:45 Session Electrophysiology

02.W.03

| Chair | Diane de Zelicourt (Zurich) |
| | Karsten Seidl (Duisburg) |

| 09:45 –10:00 | Analysis of microphony at electrodes under dynamic flow by mechanical excitation |
| | Marie-Claire Weisgerber (Trier) |

| 10:00 –10:15 | Model-based multilayer registration of the left ventricle using CT imaging |
| | Xinyu Lu (Lübeck) |

| 10:15 –10:30 | Air-liquid interface micro-electrode arrays - well-adapted tools for long-term *in vitro* monitoring of 3D neural tissues |
| | Marc O. Heuschkel (Genève) |

| 10:30 –10:45 | Electrotactile stimulation with phase-modulated interference stimulation |
| | Klaus Peter Koch (Trier) |

09:45 –10:45 Focus Session FS BMshE: Gender-sensitive and inclusive biomedical engineering

02.W.09

| Chair | Alina Kohler (Freiburg) |
| | Fabienne Sahl (Augsburg) |

09:45 –10:00	Tales of a paramedic – Practical gender-aspects in paramedic care Philip Hempel (Göttingen)
10:00 –10:15	Influence of gender on sleep staging from the electrocardiogram Miriam Goldammer (Dresden)
10:15 –10:30	Explaining a sex-related cardiovascular risk continuum Tabea Steinbrinker (Göttingen)
10:30 –10:45	Sleep, Temperature, and Hormonal Cycles: Worth A Closer Look? Walter Karlen (Ulm)

09:45 –10:45   **DGHNO**
Joint Session DGBMT - HNO „Der Tubenstent: Von der Idee zum Produkt"

02.O.09

Chair	Thomas Lenarz (Hannover)
09:45 –09:52	Chronische Tubenfunktionsstörung - klinische Problematik und Konzept des Tubenstents Thomas Lenarz (Hannover)
09:52 –09:59	Anatomische Grundlagen und Stentdesign Gerrit Paasche (Hannover)
09:59 –10:06	Stententwicklung und Fertigung Niels Grabow (Rostock)
10:06 –10:13	Tierexperimentelle Untersuchungen zur Biokompatibilität und Funktionalität Gerrit Paasche (Hannover)
10:13 –10:20	Humane Insertionsstudien Robert Schuon (Hannover)
10:20 –10:27	Design und Produktion des Tubenstent-Systems Tobias Stein (Berlin)
10:27 –10:34	Klinische Studie Thomas Lenarz (Hannover)

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Preliminary program, changes possible at any time

10:34 –10:41	Degradable Tubenstents
	Niels Grabow (Rostock)
10:41 –10:45	Discussion

11:15 –12:45 **Focus Session**
FS SVMT: Degradation Pathways and clinical
Performance of degradable Biomaterials

EG.W.01

Chair	Philine Baumann-Zumstein (Bülach)
	Leopold Berger (Zurich)
11:15 –11:45	Clinical insights and their impact on the design of magnesium stents in cardiovascular intervention
	Philine Baumann-Zumstein (Bülach)
11:45 –12:00	Investigating the effect of surface treatments on Mg-based implant behavior in male, juvenile, growing rats
	Nicole Zechmann (Graz)
12:00 –12:15	Enzymatic degradation of a γ-cyclodextrin-hyaluronic acid copolymer
	Thomas Eickner (Rostock)
12:15 –12:30	Molecular and optical degradation pathways in polyimide substrates – An accelerated aging study for implantable devices
	Anagha Navale (Freiburg im Breisgau)
12:30 –12:45	Degradation behavior of an amino acid-substituted polyphosphazene with triethyl citrate as plasticizer
	Cornelius Knuth (Rostock)

11:15 –12:45 **Session**
Biomechanics - stents

02.O.18

Chair   Stephen Ferguson (Zürich)

                            Debkalpa Goswami (Graz)

11:15 –11:30   Planar stent segment expansion as multiaxial validation load case for
                            stent development
                            Nicklas Fiedler (Rostock)

11:30 –11:45   FemStent – A microstructured polymer stent for enhanced gamete
                            transport in proximal tubal occlusion
                            Stefan Siewert (Rostock-Warnemünde)

11:45 –12:00   Radial force and expansion behavior of an elliptical transcatheter aortic
                            valve replacement in a bicuspid aortic valve
                            Laura Supp (Rostock-Wanemünde)

12:00 –12:15   Mechanical analysis of braided dissection stents – Influence of stent
                            foreshortening on radial force behaviour
                            Michael Stiehm (Rostock)

12:15 –12:30   Influence of fluid viscosity on membrane permeability – Considerations
                            for extending standard testing
                            Christopher Lenz (Rostock)

12:30 –12:45   Investigating the permeability properties of covered stents according to
                            international standards and beyond
                            Christoph Brandt-Wunderlich (Rostock-Warnemuende)

11:15 –12:45 **Session**
Biomedical instrumentation

02.W.18

Chair   Ece Elsen (Zurich)

                            Thomas Quirin (Muttenz)

11:15 –11:30	Gold nanoparticle-based breath test device for rapid detection of infections Sophie Becke (Berlin)
11:30 –11:45	Development of a dynamic fluid phantom – Setup and validation for an optical sensor Sebastian Zaunseder (Augsburg)
11:45 –12:00	Comparative irradiation experiments on porcine corneal endothelial cells at 222 nm and 254 nm David Schneider (Ulm)
12:00 –12:15	Data-driven predictive temperature control during retinal laser treatments Andra-Karina Poetschki (Lübeck)
12:15 –12:30	Precise spheroid positioning strategies for impedance-based anti-cancer drug testing Sebastian Knafl (Vienna)
12:30 –12:45	Real-time thermal predictions during pulsed field ablation using STAMP – A spatial temperature algorithm for monitoring pulses Edward Jacobs (Atlanta, GA)

11:15 –12:45 Session
Medical informatics

02.S.21

Chair	Christine Tanner (Allschwil)
	Henning Müller (Genf)
11:15 –11:30	Detection of negative arterial to end-tidal CO2 gradients in mechanically ventilated neonatal lambs Valerie Pfannschmidt (Aachen)
11:30 –11:45	Creation of a domain specific language for use in neurological scales to verify the correctness of entered data Marcos Gamez (Brienz)

11:45 –12:00	Gamifying the Mini-Cog – A narrative-based digital approach to cognitive screening Ankica Babic (Linköping)
12:00 –12:15	The influence of human annotation on CNN performance in ICU anomaly detection Lavinia Goldermann (Aachen)
12:15 –12:30	Identifying key predictors of deep brain stimulation outcomes – A feature importance analysis Vittoria Bucciarelli (Muttenz)
12:30 –12:45	Deep learning-based automatic segmentation of acute pulmonary embolism from CTPA Ehsan Amini (Kiel)

11:15 –12:45   Focus Session
FS Biomaterials and Implants I – Patient-specific approaches to therapy and implants

02.W.03

Chair	Valentine Gesché (Aachen) Michael de Wild (Muttenz)
11:15 –11:30	Individualized hand pose control – A patient study Sofian Khabbich (Hannover)
11:30 –11:45	Computational design for patient-specific mandible fracture plates Michaela Maintz (Muttenz)
11:45 –12:00	Personalized foot orthoses through a patient-centered design approach using generative AI Stefan Resch (Frankfurt am Main)
12:00 –12:15	Patient-specific haptic simulation to train ventricle puncturing during EVD (External Ventricular Drain) procedure Sara Lisa Margherita Ettori (Allschwil)
12:15 –12:30	Towards personalized bone-conduction models Johannes Niermann (Zurich)

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12:30 –12:45	Patient-specific finite element modeling of refractive surgery biomechanics – Technical assessment of PRK, LASIK, and KLEx Miguel Angel Ariza-Gracia (Bern)

11:15 –12:45   Focus Session
FS Joint session DGBMT/GMDS: Multimodal methods - joint use of image and biosignal data

02.W.09

Chair	Karin Schiecke (Jena)
	Philip Hempel (Göttingen)

11:15 –11:30	Multi-modal learning for medical images and biosignal data Anh-Tien Nguyen (Giessen)
11:30 –11:45	Multimodal signal analysis of neurovascular components of the visual system Dietmar Link (Ilmenau)
11:45 –12:00	Joint analysis of imaging and biosignal recordings in sleep medicine Christian Veauthier (Berlin)
12:00 –12:15	Analysis of differences between contact and non-contact estimation of blood pressure Fabienne Sahl (Augsburg)
12:15 –12:30	Data in the simulation and usability lab: methods and applications Beatrice Coldewey (Aachen)
12:30 –12:45	Towards standardized storage for sleep medicine – Implementing DICOM for polysomnography data Miriam Goldammer (Dresden)

11:15 –12:45   **Session**
Regulatory affairs

02.O.09

Chair   Holger Wagner (Lübeck)

Daniel Seiler (Muttenz)

11:15 –11:30   *In Silico* clinical-trials – Advancing validation for regulatory approval
Matthias Leuchter (Rostock-Warnemünde)

11:30 –11:45   Empowered local RA – Decentralizing regulatory affairs for global
efficiency in medical device compliance
Holger Wagner (Lübeck)

11:45 –12:00   How can AI-Chatbots support medical device manufacturers in risk
identification?
Tizian Mehl (Magdeburg)

12:00 –12:15   From reviewer to consultant – Navigating MDR transition challenges in
MedTech
Holger Wagner (Lübeck)

12:15 –12:30   Optimizing medical device market entry – A KPI-driven framework for
strategic country approval planning
Holger Wagner (Lübeck)

12:45 –13:45   **Offene Sitzung des DGBMT Fachausschusses**
Biomaterialien und Medizinische Implantate

12.W.09

12:45 –13:45   **Offene Sitzung des DGBMT Fachausschusses**
Magnetische Methoden in der Medizin

12.W.17

12:45 –13:45   **Offene Sitzung des DGBMT Fachausschusses Medizinische Robotik (MedRob)**

12.W.25

14:00 –15:30   **Focus Session**
FS SVMT: Biodegradable soft tissue fixation implants

EG.W.01

Chair   Annelie Martina Weinberg (Graz)

   Daphne Schönegg (Allschwil)

14:00 –14:30   Translation of fundamental research: Biodegradable magnesium implants
   Leopold Berger (Zurich)

14:30 –14:45   3D-Printed biodegradable meshes for guided bone regeneration
   Till Strunk (Allschwil)

14:45 –15:00   Development of a polycaprolactone-enhanced alginate hydrogel for 3D bioprinting of biodegradable personalized implants with sustained dexamethasone release for inner ear therapy
   Verena Scheper (Hannover)

15:00 –15:15   Melt spinning of resorbable TPU as surgical suture
   David Wienen (Aachen)

15:15 –15:30   Research and development of bioresorbable meshes for pelvic floor surgery – Initial investigation of fully degradable meshes warp-knitted from polycaprolactone monofilaments
   Hannah Flock (Aachen), David Wienen (Aachen)

14:00 –15:30	**Focus Session** **FS New developments and advancements in** **magnetic methods in medicine 2**
02.O.18	
Chair	Kerstin Pansegrau (Hall in Tirol) Silvio Dutz (Zwickau)
14:00 –14:15	Demodulation challenges in biomedical magnetometers utilizing amplitude modulation with an ultra-low modulation index Johan Arbustini (Kiel)
14:15 –14:30	Impedance modeling of magnetometers – A path toward low-noise readout circuits Johan Arbustini (Kiel)
14:30 –14:45	Multi-parameter conductivity estimation with combined EEG/MEG Johannes Vorwerk (Innsbruck)
14:45 –15:00	Harmonization of quantitative magnetic particle imaging (MPI) with scanner-independent functional phantoms Marcus Löffler (Zwickau)
15:00 –15:15	Reference magnetization measurements to characterize magnetic nanoparticles employed in biomedical applications Frank Wiekhorst (Berlin)
15:15 –15:30	tba

14:00 –15:30	**Session** **Biomedical instrumentation**
02.W.18	
Chair	Ferda Canbaz (Allschwil) Joris Pascal (Muttenz)
14:00 –14:15	Exploring welding techniques for the integration of pneumatic artifical muscles into a soft everting robot Johanna Dinkel (Stuttgart)

14:15 –14:30	Data-driven approach for left ventricular volume estimation using intracardiac admittance Daniel Voss (Aachen)
14:30 –14:45	Detachment of tumor cells from a cell-binding probe Sophia Krakowski (Berlin)
14:45 –15:00	Development and production of a handy cold plasma device for the treatment of skin indications Yves Weiland (Trier)
15:00 –15:15	A metal wire as a receiver coil for an active stent Alina Kohler (Freiburg)
15:15 –15:30	tba

14:00 –15:30 Focus Session
FS Biomaterials and Implants II – Device and material concepts

02.W.03

Chair	Niels Grabow (Rostock) Valentine Gesché (Aachen)
14:00 –14:15	Advanced tailored multilayer parylene encapsulation for medical devices Florian Glauche (Chemnitz)
14:15 –14:30	Magnetic hydrogels functionalized with *Divi-Divi* extract for tissue engineering Birgit Glasmacher (Garbsen)
14:30 –14:45	Nanostructured zirconia dental implants Romy Marek (Muttenz)
14:45 –15:00	Manufacture and characterisation of PLLA films with incorporated cobalt metalparticles Selina Schultz (Rostock)

| 15:00 –15:15 | Analytical approaches for evaluating chlorhexidine and hydroxyapatite content in 3D-printed resins for biomedical applications |
| | Marius Behnecke (Osnabrück) |

| 15:15 –15:30 | The anti-biofilm, immunomodulatory and osteogenic potential of commensal microflora-coated implants in a three-dimensional human cell-culture model |
| | Raunak Lohar (Hannover) |

14:15 –15:45 Young Forum Sessions
"Junges Forum trifft Alte Hasen" with Dr. Harald Stallforth

12.W.01

Chair   Harald Stallforth (Tutlingen)

15:45 –16:45 Offene Sitzung des DGBMT Fachausschusses BMshE - für Frauen* in der Medizintechnik

12.W.09

15:45 –16:45 Offene Sitzung des DGBMT Fachausschusses OPTOMED – Optische und endoskopische Methoden in der Medizin

12.W.17

16:00 –16:30 Keynote 2
Multimodal Medical Machine Learning

EG.W.01

Chair   Bert Müller (Allschwill)

| 16:00 –16:30 | Multimodal Medical Machine Learning |
| | Henning Müller (Genf) |

16:45 –17:45   **Focus Session**
FS SVMT: Surgeon's view of biodegradable implants for osteosynthesis

EG.W.01

Chair   Michael de Wild (Muttenz)

                             Romy Marek (Muttenz)

16:45 –17:15   Surgeon's Perspective on Biodegradable Metals for Osteosynthesis
                             Preclinical Studies with Biodegradable Magnesium Implants for Osteosynthesis
                             Benoit Schaller (Bern)

17:15 –17:30   Prolonged stability and biocompatibility testing of an alginate hydrogel cochlear implant coating under simulated inner ear conditions
                             Verena Scheper (Hannover)

17:30 –17:45   Investigation of innovative resorbable Non-Isocyanate Polyurethanes (NIPUs) for textiles in medical application
                             Hannah Flock (Aachen), David Wienen (Aachen)

16:45 –17:45   **Lightning Talks 1**

02.O.18

Chair   Ferda Canbaz (Allschwil)

                             Philip Hempel (Göttingen)

16:45 –16:50   Classification of Hand Gestures: Using EMG and Support Vector Machine
                             Niklas Burczyk (Dortmund)

16:50 –16:55   Cluster analysis of volumetric calcification distributions in the aortic valve region of TAVR patients
                             Jan Oldenburg (Rostock)

16:55 –17:00   Investigation of fatigue resistance of a self-expanding polymer microstent for the fallopian tube under accelerated cyclic loading
                             Ariane Dierke (Rostock-Warnemünde)

17:00 –17:05	Implementation of a biomimetic lock-out feature for woven elastic vascular grafts
	Pauline Riedl (Aachen)

17:05 –17:10	Three-dimensional hard X-ray micro-tomographic imaging of the human gracilis muscle
	Daphne Schönegg (Allschwil)

17:10 –17:15	Smart sizing – Machine learning-driven optimization of magnetic nanoparticles as MRI contrast agent
	Ioana Slabu (Hamburg)

17:15 –17:20	Adapting a hyperspectral imaging system to investigate selected skin areas
	Ivo Opitz (Wismar), Christoph Hornberger (Wismar)

17:20 –17:25	Advancing OCT Imaging for Knee Cartilage Analysis: A Deep Learning Approach
	Vinamrata Bhardwaj (Basel)

17:25 –17:30	Determining individual IR marker relevance for frailty assessment using explainable AI
	Markus Lüken (Aachen)

17:30 –17:35	Impact of explantation on the integrity of chronically implanted ECoG arrays – An electrochemical and optical study
	Ioana-Georgiana Vasilaș (Freiburg im Breisgau)

17:35 –17:40	Analysis of porcine nerves as *ex vivo* model for upper limb neuro-electrode implantation studies
	Sylvia Pfensig (Rostock-Warnemünde)

16:45 –17:45   Lightning Talks 2

02.W.18

Chair	Diane de Zelicourt (Zurich)
	Philippe Büchler ()

| 16:45 –16:50 | Surgical workflow for stereotactic DBS using a novel electromagnetic tracking system |
| | Thomas Quirin (Muttenz) |

| 16:50 –16:55 | Impedance spectroscopy for monitoring cancer treatment using interdigitated electrodes |
| | Ahmed Khattab (Vienna) |

| 16:55 –17:00 | Cost-effective RF metamaterial sensor for non-invasive blood monitoring |
| | Ana Belen Amado Rey (Freiburg) |

| 17:00 –17:05 | Evaluating the vibration exposure of a power-assisted liposuction device using a 3D-printed finger adapter |
| | Florian Neukirch (Rostock) |

| 17:05 –17:10 | Functional near-infrared spectroscopy of the motor cortex using an individualized head cast as optode holder |
| | Tilmann Sander-Thömmes (Berlin) |

| 17:10 –17:15 | 3D Printed Phantom for Dynamic, Real-Time Intra-Cardiac Admittance Measurements |
| | Daniel Voss (Aachen) |

| 17:15 –17:20 | SonoMap – Automated ultrasound documentation in paediatric care |
| | Oliver Gölz (Mannheim) |

| 17:20 –17:25 | Concept for enhancing efficiency in technical documentation – A software-based solution for MDR compliance |
| | Bastian Seyl (Giessen) |

| 17:25 –17:30 | Integrating clinical movement analyses into physiotherapy to support decision-making in musculoskeletal complaints of musicians |
| | Eduard Wolf (Dortmund) |

| 17:30 –17:35 | Minimal-Input Deep Learning for Remote Screening of REM Sleep Behavior Disorder |
| | Khrystyna Semkiv (Ulm) |

| 17:35 –17:40 | Architecture for telemedicine applications using nomadic 5G radio networks |
| | Manuel Rosenau (Leipzig) |

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16:45 –17:45 Lightning Talks 3

02.S.21

Chair	Sebastian Zaunseder (Augsburg)
	Dieter Hayn (Wien)

16:45 –16:50	Radiomics based thrombus evaluation of pulmonary embolism patients
	Lea Ehrhardt (Ilmenau)
16:50 –16:55	Comparing a rule-based decision tree to an LSTM network for the detection of ineffective efforts during expiration in neonates
	Camelia Oprea (Aachen)
16:55 –17:00	Early detection and monitoring of anastomotic leaks via naked eye-readable, non-electronic macromolecular network sensors
	Alexander Jessernig (Zürich)
17:00 –17:05	Contact Pressure Mismatches in Capacitive ECG Measurements
	Jannik Pruessmann (Aachen)
17:05 –17:10	Integrating HealthTech summer school into biomedical engineering education – A translational approach
	Mathias Bonmarin (Winterthur)
17:10 –17:15	tba
17:15 –17:20	Image-based Framework to Characterise Tumor Tissue Cutting for In Vitro Culture and Drug Testing
	Nikita Norkin (Lausanne)
17:20 –17:25	tba
17:25 –17:30	Analysis of somatosensory evoked potentials: Signal quality and reproducibility
	Hannah Malkowski (Emmendingen)
17:30 –17:35	Long-term at-home sleep monitoring in late-onset epilepsy using wearable EEG – First insights
	Fabian Braun (Bern)

| 17:35 –17:40 | Development of a universal, portable Bluetooth Low Energy (BLE) data logger for biomedical sensor applications |
| | Dominik Kimmerle (Munich) |

16:45 –17:45 Lightning Talks 4

02.W.03

| Chair | Winfried Mayr (Wien) |
| | Thomas Stieglitz (Freiburg im Breisgau) |

| 16:45 –16:50 | Two-component periodontal depot for sustained release of Chlorhexidine |
| | Thomas Eickner (Rostock) |

| 16:50 –16:55 | Unleashing antithrombotic potential – Porcine endothelial cells transform surfaces of left ventricular assist devices |
| | Bettina Wiegmann (Hannover) |

| 16:55 –17:00 | Production and electro-mechanical characterization of biocompatible wet-spun fibers |
| | Mario Wyrsch (Winterthur) |

| 17:00 –17:05 | Preparation for translation - First steps towards biohybrid lung in a small animal model |
| | Bettina Wiegmann (Hannover) |

| 17:05 –17:10 | Evaluation of potential biomaterials for temporary undescended testicle protection |
| | Sabine Illner (Rostock) |

| 17:10 –17:15 | Immunomodulation in Melanoma using dsRNA-silk nanoparticle complexes |
| | Samuel Peters (Waterloo) |

| 17:15 –17:20 | Investigating the relationship between the micromechanical properties of environmentally responsive hydrogels and cellular outcomes in organoid culture |
| | Jonas Waidele (Allschwil) |

| 17:20 –17:25 | Platelet Adhesion on Hard Material Coatings and Bonding Agents for Ventricular Assist Devices in a Flow Chamber |
| | Jan Schroer () |

17:25 –17:30 Plasma temperature-based tissue differentiation using Laser-Induced Breakdown Spectroscopy (LIBS) for laser guided osteotomy
Leya Pauly (Allschwil)

17:30 –17:35 Towards differentiation of free and bound bilirubin in point-of-care testing
Jan Zwicky (Winterthur)

17:35 –17:40 Raman spectroscopy for brain tumor detection: the potential of AI in preprocessing noisy Raman data from different setups and multivariate analysis of the treated Raman data
Kerstin Ramser (Luleå)

18:00 –18:15 Welcome Politicians

EG.W.01

18:00 –18:15 Welcome Politicians
Thomi Jourdan (Liestal)

18:15 –18:30 Welcome Presidents

EG.W.01

18:30 –18:45 Klee Award Session

EG.W.01

18:30 –18:40 Honoring and awarding
Olaf Dössel (Karlsruhe)

18:45 –19:20 DGBMT Fellow

EG.W.01

03 September 2025
Preliminary program, changes possible at any time

| 18:45 –18:48 | Introduction
Karsten Seidl (Duisburg) |
| --- | --- |
| 18:48 –18:58 | Laudatio
Fabian Kießling (Aachen) |
| 18:58 –19:18 | Laudatio
Thomas Schmitz-Rode (Aachen) |

19:15 –20:55   Conference opening Apero with visit poster exhibition

Foyer

19:15 –21:00   Bioinformatics

Bioinformatics

| 19:15 –19:15 | Exploring machine learning applications in estimating binding energies of therapeutics for PDAC targets
Pragya Pragya (Varanasi) |
| --- | --- |
| 19:15 –19:15 | Machine learning-driven optimization of PDAC therapeutics prediction of pharmacokinetics profiles
Pragya Pragya (Varanasi) |
| 19:15 –19:15 | Classification of Hand Gestures: Using EMG and Support Vector Machine
Niklas Burczyk (Dortmund) |

19:15 –21:00   Biomaterials

Biomaterials

| 19:15 –19:15 | Analysis of potential material alterations during reprocessing of surgical instruments with a novel biocide
Alexander Stich (Weiden) |
| --- | --- |

19:15 –19:15   Design of experiment approach to determine the effects of Tinuvin 622, recycling and sterilization by γ- irradiation on a medical polypropylene copolymer
Nele Zerhusen (Osnabrück)

19:15 –19:15   Production and electro-mechanical characterization of biocompatible wet-spun fibers
Mario Wyrsch (Winterthur)

19:15 –19:15   Two-component periodontal depot for sustained release of Chlorhexidine
Thomas Eickner (Rostock)

19:15 –19:15   Determination of polyethylene glycol content in binary polymer blends by size exclusion chromatography with regard to polydispersity
Thomas Reske (Rostock-Warnemünde)

19:15 –19:15   Wall thickness measurement of ultrathin tubes – A comparison of test methods
Daniela Koper (Rostock)

19:15 –19:15   Complementary gravimetric layer thickness analyses of sputtered nanofibre nonwovens
Volkmar Senz (Rostock)

19:15 –19:15   Preparation for translation - First steps towards biohybrid lung in a small animal model
Bettina Wiegmann (Hannover)

19:15 –19:15   Unleashing antithrombotic potential – Porcine endothelial cells transform surfaces of left ventricular assist devices
Bettina Wiegmann (Hannover)

19:15 –19:15   Evaluation of potential biomaterials for temporary undescended testicle protection
Sabine Illner (Rostock)

19:15 –19:15   Polyurethan-based scaffolds for cardiovascular implant devices
Daniela Koper (Rostock)

| 19:15 –19:15 | Immunomodulation in Melanoma using dsRNA-silk nanoparticle complexes |
| | Samuel Peters (Waterloo) |

19:15 –19:15   Investigating the relationship between the micromechanical properties of environmentally responsive hydrogels and cellular outcomes in organoid culture
Jonas Waidele (Allschwil)

19:15 –19:15   Platelet Adhesion on Hard Material Coatings and Bonding Agents for Ventricular Assist Devices in a Flow Chamber
Isabell Esslinger (Berlin)

19:15 –21:00   Biomechanics

Biomechanics

19:15 –19:15   Generative design for individual orthopaedic insoles – Optimisation of load distribution and additive manufacturing
Julia Schneider (Frankfurt am Main)

19:15 –19:15   Investigation of fatigue resistance of a self-expanding polymer microstent for the fallopian tube under accelerated cyclic loading
Ariane Dierke (Rostock-Warnemünde)

19:15 –19:15   Cluster analysis of volumetric calcification distributions in the aortic valve region of TAVR patients
Jan Oldenburg (Rostock)

19:15 –19:15   MODWT analysis of muscle fatigue conditions using facial EMG signals
Karthick P A (Tiruchirappalli)

19:15 –19:15   Implementation of a biomimetic lock-out feature for woven elastic vascular grafts
Pauline Riedl (Aachen)

19:15 –21:00   Biomedical Imaging

Biomedical Imaging

19:15 –19:15	Polarimetry-based tumour segmentation for pancreatic cancer using resin-covered HE slides Davide Scandella (Bern)
19:15 –19:15	Parametric tuning of smoothing kernel length for data-driven iterative image reconstruction with motion compensation for head computed tomography Dr. Afshan Ashfaq (Marburg)
19:15 –19:15	Inverse material characterization of silicone specimens using OCT pipette aspiration Raphael Lamprecht (Hall in Tirol)
19:15 –19:15	Enhanced clinical CT image resolution through multi-planar reconstruction for improved bone-implant simulations Benjamin Schnabel (Stuttgart)
19:15 –19:15	Evaluation strategy for image acquisition protocols in confocal microscopy mosaic imaging of the cornea Stephan Allgeier (Karlsruhe)
19:15 –19:15	Smart sizing – Machine learning-driven optimization of magnetic nanoparticles as MRI contrast agent Ioana Slabu (Hamburg)
19:15 –19:15	Three-dimensional hard X-ray micro-tomographic imaging of the human gracilis muscle Daphne Schönegg (Allschwil)
19:15 –19:15	Automatic Deep Learning-based Infarct Segmentation on Post-Endovascular Thrombectomy Duaal-Energy CT Nastaran Vatankhah Barazandeh (Innsbruck)
19:15 –19:15	Adapting a hyperspectral imaging system to investigate selected skin areas Ivo Opitz (Wismar), Christoph Hornberger (Wismar)
19:15 –19:15	Advancing OCT Imaging for Knee Cartilage Analysis: A Deep Learning Approach Vinamrata Bhardwaj (Basel)

19:15 –21:00   **Biomedical Instrumentation**

Biomedical
Instrumentation

19:15 –19:15	Surgical workflow for stereotactic DBS using a novel electromagnetic tracking system Thomas Quirin (Muttenz)
19:15 –19:15	Impedance spectroscopy for monitoring cancer treatment using interdigitated electrodes Ahmed Khattab (Vienna)
19:15 –19:15	Cost-effective RF metamaterial sensor for non-invasive blood monitoring Ana Belen Amado Rey (Freiburg)
19:15 –19:15	Experimental framework for *in vivo* vibroacoustic needle insertion ground truth Katharina Steeg (Gießen)
19:15 –19:15	Plasma treatment for adhesion enhacement of metallic thin-layers in polyurethane dry electrophysiological electrodes Aurelio Morales Murillo (Ilmenau)
19:15 –19:15	Evaluating the vibration exposure of a power-assisted liposuction device using a 3D-printed finger adapter Florian Neukirch (Rostock)
19:15 –19:15	Functional near-infrared spectroscopy of the motor cortex using an individualized head cast as optode holder Tilmann Sander-Thömmes (Berlin)
19:15 –19:15	Use of a 24 GHz antenna to measure liquid in the low microliter range for applications in medical technology Berkin Yanarsönmez (Mannheim)
19:15 –19:15	Feasibility of orthogonal Taguchi arrays for determining parameter trends in MDT Angelika Thalmayer (Erlangen)

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| 19:15 –19:15 | 3D Printed Phantom for Dynamic, Real-Time Intra-Cardiac Admittance Measurements
Daniel Voss (Aachen) |

19:15 –21:00 Digital Health & Technology

Digital Health & Technology

| 19:15 –19:15 | Development of a sensor-based system for stroke rehabilitation – Home-based dual-task training for the paretic arm
Ellen Markowski (Dortmund) |

| 19:15 –19:15 | Introducing an automated experimental setup to evaluate different flushing processes of leftovers from parenteral nutrition in cannulas
Günther Benderoth (Frankfurt am Main) |

| 19:15 –19:15 | SonoMap – Automated ultrasound documentation in paediatric care
Oliver Gölz (Mannheim) |

| 19:15 –19:15 | Concept for enhancing efficiency in technical documentation – A software-based solution for MDR compliance
Bastian Seyl (Giessen) |

| 19:15 –19:15 | Evaluating of technical documentation tools for medical devices – A market analysis and pilot study
Elyas Sayed (Giessen) |

| 19:15 –19:15 | Hydration management system for sports and health care applications – Fundamental considerations and early development
Kerstin Lebahn (Rostock) |

| 19:15 –19:15 | Integrating clinical movement analyses into physiotherapy to support decision-making in musculoskeletal complaints of musicians
Eduard Wolf (Dortmund) |

| 19:15 –19:15 | The PRIS-Tool – Preparing for clinical studies
Carsten Tautorat (Rostock) |

| 19:15 –19:15 | Minimal-Input Deep Learning for Remote Screening of REM Sleep Behavior Disorder |
| | Khrystyna Semkiv (Ulm) |

| 19:15 –19:15 | Detecting Sleep Arousals in Healthy Individuals Using Single-Lead ECG |
| | Tugce Canbaz Gümüssu (Ulm) |

19:15 –21:00 Electrophysiology

Electrophysiology

| 19:15 –19:15 | The underlaying mechanism of neuromodulation by temporal interference stimulation |
| | Lukas Geisshüsler (Biel/Bienne) |

| 19:15 –19:15 | MEG-compatible light stimulator for photopic applications |
| | Hannes Oppermann (Ilmenau) |

| 19:15 –19:15 | tba |

| 19:15 –19:15 | Analysis of somatosensory evoked potentials: Signal quality and reproducibility |
| | Hannah Malkowski (Emmendingen) |

19:15 –21:00 Medical Informatics

Medical Informatics

| 19:15 –19:15 | Radiomics based thrombus evaluation of pulmonary embolism patients |
| | Lea Ehrhardt (Ilmenau) |

| 19:15 –19:15 | Comparing a rule-based decision tree to an LSTM network for the detection of ineffective efforts during expiration in neonates |
| | Camelia Oprea (Aachen) |

| 19:15 –19:15 | Development of a RAG-enhanced chatbot for reliable medical radiation protection guidance |
| | John Damilakis (Iraklion) |

| 19:15 –19:15 | Usability and developer perspectives in mobile neurological diagnosis and self-management apps |
| | Ankica Babic (Linköping) |

19:15 –21:00 Movement Analysis

Movement Analysis

| 19:15 –19:15 | Comparing the influence of active and passive tilting using a pressure sensing mat |
| | Alparslan Babur (Furtwangen im Schwarzwald) |

| 19:15 –19:15 | Validation of wearable step-counting devices in daily life |
| | Mathieu Lemay (Neuchâtel) |

| 19:15 –19:15 | Determining individual IR marker relevance for frailty assessment using explainable AI |
| | Markus Lüken (Aachen) |

19:15 –21:00 Neurotechnology

Neurotechnology

| 19:15 –19:15 | Can source estimation improve lower limb motor imagery EEG classification? |
| | Magdalena Maurer (Hall in Tirol) |

| 19:15 –19:15 | EEG-based analysis of evoked potentials – Differentiating between pain and sensory reactions under cognitive distraction |
| | Ilayda Kekec (Dortmund) |

| 19:15 –19:15 | Analysis of porcine nerves as *ex vivo* model for upper limb neuro-electrode implantation studies |
| | Sylvia Pfensig (Rostock-Warnemünde) |

| 19:15 –19:15 | Impact of explantation on the integrity of chronically implanted ECoG arrays – An electrochemical and optical study |
| | Ioana-Georgiana Vasilaș (Freiburg im Breisgau) |

19:15 –21:00 Optical Methods

Optical Methods

19:15 –19:15	Concept study for treatment of biofilm on bone tissue by blue light irradiation Neila Ouldali (Ulm)
19:15 –19:15	Plasma temperature-based tissue differentiation using Laser-Induced Breakdown Spectroscopy (LIBS) for laser guided osteotomy Leya Pauly (Allschwil)
19:15 –19:15	Towards differentiation of free and bound bilirubin in point-of-care testing Jan Zwicky (Winterthur)
19:15 –19:15	Resistance development in *Escherichia coli* against far-UVC irradiation Isabel Poblotzki (Ulm)
19:15 –19:15	Raman spectroscopy for brain tumor detection: the potential of AI in preprocessing noisy Raman data from different setups and multivariate analysis of the treated Raman data Kerstin Ramser (Luleå)
19:15 –19:15	Translational Mental Health: Towards measuring haemodynamic activity and electrophysiology at the bedside using fNIRS/EEG – An exploratory investigation in MDD patients Shaghayegh Eskandari (wuppertal)

19:15 –21:00 Patient Monitoring

Patient Monitoring

19:15 –19:15	Early detection and monitoring of anastomotic leaks via naked eye-readable, non-electronic macromolecular network sensors Alexander Jessernig (Zürich)
19:15 –19:15	Research platform for near-body materials interactions Rene Grabher (Buchs)
19:15 –19:15	Preliminary results on sensor placement for assessing lower limb muscle strength using accelerometer-based countermovement jump data Nico Herwegh (Münchenbuchsee)

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| 19:15 –19:15 | Event based acceleration measurement and fall detection
Niklas Huhs (Wismar) |
|---|---|
| 19:15 –19:15 | Contact Pressure Mismatches in Capacitive ECG Measurements
Jannik Pruessmann (Aachen) |

19:15 –21:00   Telemedicine

Telemedicine

| 19:15 –19:15 | Architecture for telemedicine applications using nomadic 5G radio networks
Manuel Rosenau (Leipzig) |
|---|---|

19:15 –21:00   Training & Further Education

Training & Further Education

| 19:15 –19:15 | Integrating HealthTech summer school into biomedical engineering education – A translational approach
Mathias Bonmarin (Winterthur) |
|---|---|
| 19:15 –19:15 | Modular Python based toolbox for learning the complex concept of biosignals
Hannes Oppermann (Ilmenau) |
| 19:15 –19:15 | Designing a modular and wearable platform for education in biosignal acquisition and processing
Hemalatha Narayanan (Ulm) |

19:15 –21:00   Wearables

Wearables

| 19:15 –19:15 | Wireless scanning textile replaces plaster molding for the design of ankle foot orthoses
Corentin Féry (Muttenz) |
|---|---|

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| 19:15 –19:15 | Portable gait-asymmetry detection using low-cost hardware and machine learning |
| | Victor Lange Machado Carneiro (Hamburg) |

| 19:15 –19:15 | Continuous non-invasive measurement of core vital signs in the hospital ward |
| | Fabian Braun (Bern) |

| 19:15 –19:15 | Development of a universal, portable Bluetooth Low Energy (BLE) data logger for biomedical sensor applications |
| | Dominik Kimmerle (Munich) |

| 19:15 –19:15 | Long-term at-home sleep monitoring in late-onset epilepsy using wearable EEG – First insights |
| | Fabian Braun (Bern) |

10.09.2025

08:45 –09:15   Keynote 3
Quantitative X-ray imaging – towards material-specific numbers from images

EG.W.01

Chair   Bert Müller (Allschwill)

| 08:45 –09:15 | Quantitative X-ray imaging – towards material-specific numbers from images |
| | Julia Herzen (München) |

08:45 –18:30   Poster exhibition

Foyer

09:30 –10:30   **Session**
Biomedical imaging

EG.W.01

Chair   Walter Karlen (Ulm)

                         Romy Marek (Muttenz)

09:30 –09:45   Biplanar X-Ray reconstruction for 3D vertebral analysis in adolescent
                         scoliosis
                         Salvatore Conticello (Zürich)

09:45 –10:00   Integrating heart-on-chip technology and 3D porcine living myocardial
                         slices for cardiotoxicity screening
                         Maria Jordan (Hannover)

10:00 –10:15   Synchrotron radiation-based micro computed tomography enables in vivo
                         imaging of the mouse central nervous system
                         Marta Girona Alarcon (Zürich)

10:15 –10:30   Crossing the wall – Characterization of systematic connections of
                         osteocyte dendrites between bone regions of different (re-) modeling
                         units based on synchrotron nanoCT imaging
                         Sophie Therese Anuth (Donostia - San Sebastian)

09:30 –10:30   **Session**
Neurotechnology

02.O.18

Chair   George Kouvas (Basel)

                         Dorian Vogel (Muttenz)

09:30 –09:45   Experimental validation of a test setup for hydrodynamic characterization
                         of hydrocephalus shunts
                         Lucas Tetzlaff (Rostock)

09:45 –10:00   Multimodal measurement and stimulation system to investigate the
                         effects of non-invasive electrical stimulation of the Phrenic nerve
                         Tim Kalla (Ilmenau)

| 10:00 –10:15 | Towards optimal gesture selection in asynchronous EEG-based BCIs
Patrick Suwandjieff (Graz) |
|---|---|
| 10:15 –10:30 | Layout of an ultra-sensitive multi-channel electro- and magnetoencephalography system for the non-invasive single trial detection of high frequency somatosensory evoked responses
Jim Barnes (Berlin) |

09:30 –10:30   Focus Session
FS EMBRACE Projektsymposium: Internationales H2020-Projekt 1

02.W.18

Chair   Silvia Comani (Chieti)

Patrique Fiedler (Ilmenau)

| 09:30 –10:00 | Brain-to-Brain coupling – A review of hypersynchronization in joint action
Ernesto Pereda (La Laguna) |
|---|---|
| 10:00 –10:15 | A theoretical and methodological framework for joint action neuroscience
Antonio De Fano (Naples) |
| 10:15 –10:30 | The EMBRACE concept and study protocol
Silvia Comani (Chieti) |

09:30 –10:30   Session
Medical informatics

02.S.21

Chair   Dominique Brodbeck (Muttenz)

Christine Tanner (Allschwil)

| 09:30 –09:45 | Predicting deep brain stimulation outcomes using intra-operative stimulation test data
Vittoria Bucciarelli (Muttenz) |
|---|---|

09:45 –10:00	Embedding patient journeys – An LLM-enhanced approach for medical data exploration Rahel Lüthy (Muttenz)
10:00 –10:15	Evaluation of AI transferability between hospitals through phase recognition in laparoscopic cholecystectomy Eric Wisotzky (Berlin)
10:15 –10:30	Bayesian optimization driven cancer drug dose-response curve discovery Hawo H. Höfer (Eggenstein-Leopoldshafen)

09:30 –10:30   Session
Rehabilitation/ESMAC seminar

02.W.03

Chair	Georg Rauter (Basel) Lauren Chee (Basel)
09:30 –09:45	Impedance spectroscopy of new textile electrodes for bioelectrical stimulation Irene Lange (Ilmenau)
09:45 –10:30	Exoskeletons for therapy and assistance Robert Riener (Zürich)

09:30 –10:30   Klee Prize
Klee Award Session

02.W.09

Chair	Olaf Dössel (Karlsruhe)
09:30 –09:45	Optimization of Patient Matching in Total Knee Arthroplasty through Improved Implant Sizing and Detailed Fit Assessment Sonja Ehreiser (Aachen)
09:45 –10:00	Towards enhanced rehabilitation: modeling and control of lower limb exoskeletons for human-robot cooperation and fatigue management Lukas Bergmann (Aachen)

| 10:00 –10:15 | Investigation of Biological and Technical Components for the Development of a 3D-Bioprinting Process for Vascularized Organs-on-a-Chip |
| | Anna Moritz-Fritschen (Darmstadt) |

09:30 –10:30   Young Forum Sessions Career breakfast

Lounge, 12th floor

10:30 –11:00   Offene Sitzung des DGBMT Fachausschusses Ultraschall in der Medizin

12.W.01

10:30 –11:00   Offene Sitzung des DGBMT Fachausschusses Implantierbare Assistenzsysteme und Rehabilitationstechnik

12.W.09

10:30 –11:00   Offene Sitzung des DGBMT Fachausschusses Intelligente Implantate und Neurotechnink

12.W.17

11:00 –12:30   Session Biomedical imaging

EG.W.01

| Chair | Georg Schulz (Basel) |
| | Sonja Ehreiser (Aachen) |

| 11:00 –11:15 | Simultaneous X-ray imaging and diffraction of early enamel lesions |
| | Hans Deyhle (Allschwil) |

| 11:15 –11:30 | Radiopacity of implants – Micro-CT imaging compared to standardized medical imaging |
| | Swen Grossmann (Rostock) |

| 11:30 –11:45 | Characterization of a new fluorescence lifetime imaging ophthalmoscope and its comparison to the gold standard |
| | Julia Nycz (Ilmenau) |

| 11:45 –12:00 | Generation of realistic multi-energy cone-beam CT datasets based on medical software phantoms |
| | Laura Hellwege (Luebeck) |

| 12:00 –12:15 | Determining the thickness of a convoluted sub-micrometer cell structure in X-ray tomography |
| | Christine Tanner (Allschwil) |

| 12:15 –12:30 | tba |

11:00 –12:30 Session
Modelling & simulation in physiology

02.O.18

| Chair | Pablo Sinues (Basel) |
| | Eric Elzenheimer (Kiel) |

| 11:00 –11:15 | Model-in-the-Loop simulation of mechanical ventilation in neonates |
| | Valerie Pfannschmidt (Aachen) |

| 11:15 –11:30 | A passive beating heart Mock-Loop to enable cardiac device testing |
| | Isabell Schulz (Berlin) |

| 11:30 –11:45 | Analysis of performance limitations of a widely used lung simulator |
| | Mate Ferencz (Pforzheim) |

| 11:45 –12:00 | Evaluating the effects of left bundle branch block in an electromechanical heart model |
| | Carola Kruthoff (Karlsruhe) |

| 12:00 –12:15 | Stroke across scales – Impact on blood perfusion and oxygen supply in the brain |
| | Franca Schmid (Bern) |

| 12:15 –12:30 | Evaluating the suitability of a neonatal respiratory system model for the simulation of arterial partial pressure |
| | Camelia Oprea (Aachen) |

11:00 –12:30 Focus Session
FS EMBRACE Projektsymposium: Internationales H2020-Projekt 2

02.W.18

| Chair | Marta Francisca Corrà (Garbagnate Milanese) |
| | Ricardo Bruña (Madrid) |

| 11:00 –11:30 | Dry electrodes for mobile electroencephalography |
| | Jens Haueisen (Ilmenau) |

| 11:30 –11:45 | A novel framework for high-precision, time-synchronized and multi-device brain/body data acquisition |
| | Fabio Barollo (Berlin) |

| 11:45 –12:00 | The EMBRACE multimodal monitoring and dry EEG solutions for joint action studies |
| | Patrique Fiedler (Ilmenau) |

| 12:00 –12:15 | Electroencephalographic recurrent operations model tested with IndeX (MORETIX) – Toolbox for preprocessing, classification, and interpretation of electroencephalography (EEG) recordings |
| | Daniel Morera Alonso (Madrid) |

| 12:15 –12:30 | Effective denoising of EEG data |
| | Milana Komosar (Ilmenau) |

11:00 –12:30   **Focus Session**
FS Biomaterials and Implants III – Materials and device testing

02.S.21

Chair   Valentine Gesché (Aachen)

Niels Grabow (Rostock)

11:00 –11:15   Scalable manufacturing of microphysiological systems to extend the production volume
Hedvika Maxová (Dresden)

11:15 –11:30   In vitro investigation of electrospun PVDF-TrFE fiber mats to reduce fibroblast growth on cochlear implant electrodes
Vinzent Braemer (Hannover), Gerrit Paasche (Hannover)

11:30 –11:45   Pacemaker lead insulations – Elaboration of an oxidizing test solution for comparative assessment of *in vitro b*iostability
Sylvia Pfensig (Rostock-Warnemünde)

11:45 –12:00   Mimicking vascular mechanics – Endothelial response to dynamic deformation on a hybrid membrane
Ina Prade (Freiberg)

12:00 –12:15   Development of tubular nonwoven structures via a melt electrospinning process with the possibility of customisation
Alisa Wald (Denkendorf)

12:15 –12:30   Use of experimental ray tracing for locally resolved characterization of progressive addition and contact lenses
Friedrich Fleischmann (Bremen)

11:00 –12:30   **Session**
Rehabilitation/ESMAC seminar

02.W.03

Chair   Georg Rauter (Basel)

Lauren Chee (Basel)

11:00 –11:15	Vibrotactile sensory feedback improves hand prosthesis function
	Stephanie Schild (Vienna)
11:15 –12:00	Interfacing men and machines for health benefits
	Stanisa Raspopovic (Wien)
12:00 –12:15	Recognition of emotional responses based on pose information in weightlifting
	Yanhua Zhao (Darmstadt)
12:15 –12:30	Observation of isometric actions do not evoke motor resonance: a TMS study
	Nadia Milanesi (Pieve Emanuele)

11:00 –12:30 Session
Robotics & surgical support systems

02.W.09

Chair	Jan Peters (Garbsen)
	Ardian Jusufi (Zurich)
11:00 –11:15	Neuronavigated brain tumor biopsy with in-situ intraoptical guidance
	Karin Wårdell (Linköping)
11:15 –11:30	Individual stress reactions induced by mistakes during minimally-invasive surgical training
	Maryam Abbasi (Göttingen)
11:30 –11:45	Spatio-temporal transformer for surgical instrument recognition in computer aided surgeries
	Hisham ElMoaqet (Amman)
11:45 –12:00	Conceptual design of HMI and eHMI for an autonomous patient transport system
	Korinna Welte (Stuttgart)
12:00 –12:15	Cable-driven parallel robots for human interaction – Approaches and applications
	Max Schäfer (Stuttgart)

| 12:15 –12:30 | Evaluation of the reconstruction accuracy of 3D robotic ultrasound on in-vitro phantoms for the geometrical characterization of abdominal aortic aneurysms |
| | Timo Waschk (Mülheim) |

11:00 –12:30 Session Wearables

02.O.09

Chair	Joris Pascal (Muttenz)
	Mathieu Lemay (Neuchâtel)
11:00 –11:15	Predicting ECG age in 24-hour Holter recordings of heart failure patients
	Philip Hempel (Göttingen)
11:15 –11:30	Effects of wrist sensor placement on PPG signal quality
	Dominik Meier (Pforzheim), Benno Dömer (Pforzheim)
11:30 –11:45	Sleep staging in patients with suspected sleep apnea using wearables and deep learning
	Fabian Braun (Bern)
11:45 –12:00	Novel wearable dry-electrode sensors for long-term multi-parameter cardiorespiratory monitoring
	James Rosenthal (Neuchatel)
12:00 –12:15	Unobtrusive reflectance photoplethysmography for detecting and severity grading of sleep apnea via oxygen desaturation index
	Fabian Braun (Bern)
12:15 –12:30	Tracking blood pressure changes in hypertension management with a cuffless wearable device
	Martin Proença (Bern)

12:35 –13:35 General Assembly SSBE

02.S.21

12:35 –13:35   **General Assembly DGBMT**

02.W.03

14:00 –15:30   **Session**
Biomedical imaging

EG.W.01

Chair   Hans Deyhle (Allschwil)

Markus Lüken (Aachen)

14:00 –14:15   The most efficient spectrum for 3D scanning of human skin – Retrofitting a standard RGB projector with three wavelength-shifted red LEDs
Marco Wyss (Biel/Bienne)

14:15 –14:30   Detection of fiber structure and calcification in xenogeneic pericardium by OCT – An innovative option for biomaterial testing in cardiac surgery
Jonas Golde (Dresden)

14:30 –14:45   tba

14:45 –15:00   Analysis of skin-melanin-influence and -content using hyperspectral imaging
Maximilian Aumiller (Planegg)

15:00 –15:15   Fast and user-friendly multi-spectra Mueller matrix polarimeter for fresh tissue biopsy imaging
Davide Scandella (Bern)

15:15 –15:30   Simulation-based optimization of dynamic PET imaging using 4D-XCAT phantoms and clinical time-activity curves
Othmane Bouhali ()

14:00 –15:30 **Focus Session**
FS Biomaterials and Implants IV – Fabrication and technologies

02.O.18

Chair Verena Scheper (Hannover)

Maurizio Gullo (Muttenz)

14:00 –14:15 tba

14:15 –14:30 Three-dimensional additively manufactured electrode arrays for extracellular electrophysiology of organoids
Amelie Ziller (Vienna)

14:30 –14:45 Highly conformal thin-film coating on 3D-printed, open-porous structures using TiO2 ALD
Nicolai Simon (Furtwangen im Schwarzwald)

14:45 –15:00 Evaluation of maximum overhang angles for the support-free additive manufacturing of calcium phosphate cement structures
Martin Pendzik (Dresden)

15:00 –15:15 A simple and cost-effective energy modulator design with enhanced structural robustness for FLASH proton therapy
Virgile Hagmann (Muttenz)

15:15 –15:30 tba

14:00 –15:30 **Focus Session**
FS EMBRACE Projektsymposium: Internationales H2020-Projekt 3

02.W.18

Chair Jens Haueisen (Ilmenau)

Milana Komosar (Ilmenau)

14:00 –14:30 Benefits of automatic EEG pre-processing in the era of large databases
Federico Ramírez (Madrid)

14:30 –14:45	Removing high amplitude fluctuations due to movement from EEG data Silvia Comani (Chieti)
14:45 –15:00	Challenges and opportunities to study brain-to-brain interaction under a table-tennis paradigm using dry EEG technology Ricardo Bruña (Madrid)
15:00 –15:15	Hyperbrain microstate analysis for inter-brain dynamics during dyadic joint action Filippo Zappasodi (Chieti)
15:15 –15:30	256-channel high-density electroencephalography for microstates analysis with dry and gel-based electrodes Hannes Oppermann (Ilmenau)

14:00 –15:30 Focus Session
FS Joint session BMT & DGPTM "When technology meets the heart"

02.S.21

Chair	Karsten Seidl (Duisburg) Folker Wenzel (Villingen Schwenningen) Frank Münch (Erlangen)
14:00 –14:15	Opening Remarks Karsten Seidl (Duisburg)
14:15 –14:30	Pharmacologically enhanced ex-vivo machine perfusion of hearts from old donors Lars Saemann (Halle (Saale))
14:30 –14:45	Distinguishing capture from artifact in transcutaneous cardiac pacing Jonas Fischer (Schwenningen)
14:45 –15:00	New path in academic dress for perfusiology and technical medicine Frank Münch (Erlangen)
15:00 –15:15	Clinical impact of technical physicians on quality of care in Germany Folker Wenzel (Villingen Schwenningen)

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15:15 –15:30   Wrap-up Discussion

14:00 –15:30   Session Neurotechnology

02.W.03

Chair   Gerhard Schmidt (Kiel)

                      Simone Hemm ()

14:00 –14:15   Investigation of the attenuation and wave characteristics of high-frequency sound waves from bare and encapsulated membrane-based ultrasonic transducers
                      Benedikt Szabo (Freiburg)

14:15 –14:30   *In-Silico* investigation of multipolar stimulation in inner ear implants for improving selective stimulation
                      Michael Handler (Innsbruck)

14:30 –14:45   Do voltage or current source models better capture impedance effects on LFPs during DBS?
                      Revathi Appali (Rostock)

14:45 –15:00   Increased cortico-muscular connectivity after hypoglossal nerve neurostimulation in people with obstructive sleep apnea
                      Haralampos Gouveris (Mainz)

15:00 –15:15   Modeling electrode response to post-implantation conditions with electrochemical impedance spectroscopy
                      Larissa Graner (Freiburg im Breisgau)

15:15 –15:30   Automated onset detectors to calculate the readiness-potential in EEG signals
                      Sébastien Monn (Winterthur)

03 September 2025
Preliminary program, changes possible at any time

14:00 –15:30	**Session** **Patient monitoring**

02.W.09

Chair	Pablo Sinues (Basel)
	Nicolai Spicher (Göttingen)

14:00 –14:15	Abdominal perfusion visualized by electrical impedance tomography Bernhard Laufer (Villingen-Schwenningen)
14:15 –14:30	A novel multimodal subcutaneous implant for long-term heart failure monitoring Thomas Niederhauser (Biel/Bienne)
14:30 –14:45	Non-contact heart rate and respiration rate monitoring for elderly care Svenja Kobel (Duisburg)
14:45 –15:00	Influence of body position on bioelectrical impedance analysis Laura Garcia Petershof (Dortmund)
15:00 –15:15	Visual field-based machine learning model for predicting disease stage in glaucoma Marta Colmenar Herrera (Bern)
15:15 –15:30	tba

14:00 –15:30	**Focus Session** **FS Introductory talk by BMshE and open discussion round**

02.O.09

Chair	Miriam Goldammer (Dresden)
	Karin Schiecke (Jena)

14:00 –15:30	Introductory talk (Goldammer) discussion round BMshE Miriam Goldammer (Dresden)

15:30 –16:00   **Offene Sitzung des DGBMT Fachausschusses Regulatory Affairs**
Offene Sitzung des DGBMT Fachausschusses Regulatory Affairs

12.W.01

15:30 –16:00   **Offene Sitzung des DGBMT Fachausschusses Biosignale**

12.W.09

15:30 –16:00   **Offene Sitzung des DGBMT Fachausschusses Ultraschall in der Medizin**

12.W.17

16:00 –16:30   **Keynote 4**
Quantum Sensing for Medicine – Hype or Hope?

EG.W.01

Chair   Tilmann Sander-Thömmes (Berlin)

16:00 –16:30   Quantum Sensing for Medicine – Hype or Hope?
                 Justus Marquetand (Stuttgart)

16:45 –17:45   **Session**
Biomedical imaging

EG.W.01

Chair   Marta Girona Alarcon (Zürich)

                 Georg Schulz (Basel)

16:45 –17:00   Explainable AI for automated Osteoarthritis classification in x-rays
                 Caitlyn Zuppinger (Baden)

17:00 –17:15	Enhancing ovarian tumor segmentation with attention-driven adaptation of MedSAM Meghana Manvitha Venna (Chennai)
17:15 –17:30	Investigation of potential motion artifacts on the image quality of X-ray images with portable X-ray systems and their compensation Mario Baum (Chemnitz)
17:30 –17:45	Aimed breathing into different parts of the lung Bernhard Laufer (Villingen-Schwenningen)

16:45 –17:45 Focus Session
FS New developments and advancements in magnetic methods in medicine 3

02.O.18

Chair	Eric Elzenheimer (Kiel) Daniel Baumgarten (Innsbruck)
16:45 –17:00	Comparison of the influence of different MNP immobilization methods on the temperature effect on MRX relaxation parameters Kerstin Pansegrau (Hall in Tirol)
17:00 –17:15	MRI quantification study of magnetic nanoparticles at varying concentrations using different quantification methods Mishuk Mitra (Innsbruck)
17:15 –17:30	Magnetic hyperthermia and imaging of hybrid fibres Max Schoenen (Hamburg)
17:30 –17:45	3D magnetomotive displacement estimation of magnetic nanoparticles using a matrix transducer Christian Marinus Huber (Erlangen)

16:45 –17:45   **Focus Session**
FS EMBRACE Projektsymposium: Internationales
H2020-Projekt 4

02.W.18

Chair	Daniel Morera Alonso (Madrid)
	Patrique Fiedler (Ilmenau)
16:45 –17:00	Integrating movement analysis and neurophysiological measurements for understanding human behavior
Marta Francisca Corrà (Garbagnate Milanese)
17:00 –17:15	Cardiac modulation during cooperative and competitive joint actions
Antonio De Fano (Naples)
17:15 –17:30	Network physiology approach for multimodal dyadic acquisitions
Filippo Zappasodi (Chieti)
17:30 –17:45	Round Table

16:45 –17:45   **SSBE Award**

02.S.21

Chair	Ferda Canbaz (Allschwil)
	George Kouvas (Basel)
16:45 –17:10	Filamented Light (FLight) Biofabrication: A Novel Approach for Aligned Tissue Engineering
Hao Liu (Zurich)
17:10 –17:35	Eye and heart synchronisation: Development of time-resolved optical coherence tomography with electrocardiographic coupling
Philippe Valmaggia (Basel)
17:35 –17:45	Discussion

16:45 –17:45	**Session** **Signal processing**

02.W.03

Chair	Reto Wildhaber (Muttenz)
	Jens Haueisen (Ilmenau)

16:45 –17:00	Computational fluid dynamics in preterm neonatal airways – Insights into airflow dynamics and aerosol deposition Florian Czeczil (Vienna)
17:00 –17:15	A deep transformer model to detect systemic hypertenion in sleep apnea patients using PPG signals Hisham ElMoaqet (Amman)
17:15 –17:30	Development of a low-cost electrodynamic fatigue testing system with automated sine wave quality assessment Alexander Thiesen (Rostock-Warnemünde)
17:30 –17:45	Image segmentation for automatic needle puncture annotation in vibroacoustic signals Karol Strama (Kraków)

16:45 –17:45	**Session** **Training and further education**

02.W.09

Chair	Pablo Sinues (Basel)
	Christoph Hornberger (Wismar)

16:45 –17:00	Enhancing emergency airway training – Design and assessment of an affordable Cricothyrotomy model Tim Weiß (Magdeburg)
17:00 –17:15	Beyond the standard Thorax – A new generation of modular biophantoms Tim Weiß (Magdeburg)

| 17:15 –17:30 | Virtual practice, real learning – Extended reality in medical training and education |
| | Lilly Treml (Vienna) |

| 17:30 –17:45 | From simulation to awareness – Educating diverse audiences on COPD and smoking risks |
| | Vasil Vodenicharov (Vienna) |

18:00 –18:30   Lightning Talks 5

EG.W.01

| Chair | Pablo Sinues (Basel) |
| | Winfried Mayr (Wien) |

| 18:00 –18:05 | Homogeneous delivery of cardiomyocyte aggregates – Tackling cell sedimentation in robotic injection systems |
| | Raphael Moenkemoeller (Garbsen) |

| 18:05 –18:10 | Optimizing reachability and wrench estimation in robotic ultrasound via probe holder geometry |
| | Jonas Osburg (Lübeck) |

| 18:10 –18:15 | Development of a robotic test stand for testing vibroacoustic sensor units in needle insertion experiments |
| | Yeqingqing Huang (Magdeburg) |

| 18:15 –18:20 | Towards a soft robotic assistance system for interventional magnetic resonance imaging |
| | Jan Peters (Garbsen) |

| 18:20 –18:25 | Towards robotic surgical interventions augmented by image recognition using artificial intelligence: The potential of automated CTS and cataract surgery |
| | Clemens Julian Sailer (Villingen-Schwenningen) |

18:00 –18:30   Lightning Talks 6

02.O.18

Chair	Jens Haueisen (Ilmenau)
	Folker Wenzel (Villingen Schwenningen)

18:00 –18:05	In-silico modeling of lung cancer electrophysiology – A digital cell twin approach to Ion channel dynamics and therapeutic targeting Christian Baumgartner (Graz)
18:05 –18:10	Astrocyte calcium signaling and morphological heterogeneit Kerstin Lenk (Graz)
18:10 –18:15	Comparative evaluation of lung recruitment strategies in high-frequency oscillatory ventilation – *Ex Vivo* study Richard Pasteka (Vienna)
18:15 –18:20	Lumen reconstruction of covered stents for numerical simulation of thrombosis risk Finja Borowski (Rostock)
18:20 –18:25	Internationalization of teaching in life science engineering – A train-the-trainer approach Sarah Langer (Vienna)

18:00 –18:30   Lightning Talks 7

02.W.18

Chair	Philip Hempel (Göttingen)
	Antje-Christin Knopf ()

18:00 –18:05	Evaluation of the relationship between hypoxic burden and AHI in clinical sleep data Sara Bäcker (Dresden)
18:05 –18:10	A novel two-stage electrocardiogram compression algorithm for continuous cardiac monitoring Thomas Niederhauser (Biel/Bienne)

18:10 –18:15	Spatial drift estimation for bioelectric sensor arrays using local multivariate polynomial event approximation Christof Baeriswyl (Muttenz), Reto Wildhaber (Muttenz)
18:15 –18:20	Electromyographic Fatigue Indices for Local Electromyostimulation: A Comparative Analysis Katja Uhrhan (Ilmenau)
18:20 –18:25	Enhancing Medical Device Data Integration for Crisis-Resilient Healthcare Systems: A National Survey of Hospital Infrastructure Markus Kmentt (Graz)

18:00 –18:30   Lightning Talks 8

02.S.21

Chair	Diane de Zelicourt (Zurich) Karin Schiecke (Jena)
18:00 –18:05	Innovative 3D printed semi-dry electrodes for EEG portable device Fabrizio Spano (Winterthur)
18:05 –18:10	Development and analysis of fiber-reinforced composites using additive manufacturing for the application as osteosynthesis plates Cornelia Fano (Denkendorf), Carsten Linti (Denkendorf)
18:10 –18:15	Computational Modeling of Systemic Lupus Erythematosus and Epidermolysis Bullosa: A Systems Biology Approach Henric Skytt (Värmdö)
18:15 –18:20	Model-based analysis of individual electrically stimulated nerve fibers Rebecca Felsheim (Oldenburg)
18:20 –18:25	Development of basic model experiments to investigate the failure mechanism during the implantation of hip joint endoprosthesis by means of acoustic emission analysis AEA Benedict Schneider (Gießen)

18:30 –19:30   **Poster Session**

Foyer

18:30 –19:30   **Additive Manufacturing**

Additive Manufacturing

18:30 –18:30   Micro-selective laser melting for miniature metallic devices
Janik Hänggi (Muttenz)

18:30 –18:30   Direct material characterization of polyether ether ketone filament using rotational rheometry
Annika Hangleiter (Munich)

18:30 –18:30   Innovative 3D printed semi-dry electrodes for EEG portable device
Fabrizio Spano (Winterthur)

18:30 –18:30   Development and analysis of fiber-reinforced composites using additive manufacturing for the application as osteosynthesis plates
Cornelia Fano (Denkendorf), Carsten Linti (Denkendorf)

18:30 –19:30   **Biofabrication**

Biofabrication

18:30 –18:30   Design, construction, and validation of a reaction chamber for MIP generation
Johannes Kober (Munich)

18:30 –19:30   **Image & Signal Processing**

Image & Signal
Processing

18:30 –18:30   Generation of artificial pressure ulcer images using deep convolutional GANs
Daniel Blase (Aachen)

18:30 –18:30   Speech biomarkers for automated depression level detection
Vered Aharonson (Braamfontein)

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Preliminary program, changes possible at any time

18:30 –18:30   About the comparison and evaluation of real-valued multimodal medical point clouds
Christian Janorschke (Lübeck)

18:30 –18:30   Spatial drift estimation for bioelectric sensor arrays using local multivariate polynomial event approximation
Christof Baeriswyl (Muttenz), Reto Wildhaber (Muttenz)

18:30 –18:30   Transfer learning unlocks new potential in cochlear implant calibration
Celine Desoyer (Graz)

18:30 –18:30   Development of an external user interface for an approved medical system
Karin Somerlik-Fuchs (Emmendingen)

18:30 –18:30   A modular educational platform for biosignal processing – Bridging biomedical and engineering disciplines
Jessica Ploenes (Krefeld), Andreas Kitzig (Krefeld)

18:30 –18:30   Analyzing the effect of PPG sensor placement on the signal quality measured by a modified personal scale
Niko Strotmann (Duisburg)

18:30 –18:30   Phonocardiogram classification techniques using machine learning models – Comparative study
Marianne Maktabi (Köthen)

18:30 –18:30   Automatic labeling of multi-modal sensor training data for hand gesture analysis
Tom Hetto (Karlsruhe)

18:30 –18:30   Multivariate assessment of coupling directions based on high-resolution joint symbolic dynamics
Steffen Schulz (Berlin)

18:30 –18:30   ML-Driven contamination classification for XPS analysis of PLA surfaces
André Orth (Eggenstein-Leopoldshafen)

18:30 –18:30   Spatial low pass filter for EEG data with SPHARA
Lydia Hofmann (Ilmenau)

18:30 –18:30	Evaluation of the relationship between hypoxic burden and AHI in clinical sleep data Sara Bäcker (Dresden)
18:30 –18:30	Point-of-care colour space developer algorithm for vision deficits using MLP regressor Hemalatha Karnan (Thanjavur)
18:30 –18:30	A novel two-stage electrocardiogram compression algorithm for continuous cardiac monitoring Thomas Niederhauser (Biel/Bienne)
18:30 –18:30	Electromyographic Fatigue Indices for Local Electromyostimulation: A Comparative Analysis Katja Uhrhan (Ilmenau)

18:30 –19:30   Modelling & Simulation of Physiology

Modelling & Simulation
of Physiology

18:30 –18:30	Influence of neck tissue conductivities on the phrenic nerve activation threshold during non-invasive electrical stimulation Laureen Wegert (Ilmenau)
18:30 –18:30	In-silico modeling of lung cancer electrophysiology – A digital cell twin approach to Ion channel dynamics and therapeutic targeting Christian Baumgartner (Graz)
18:30 –18:30	Towards a simulation model for postoperative atrial fibrillation risk factors Julian Mierisch (Karlsruhe)
18:30 –18:30	Astrocyte calcium signaling and morphological heterogeneit Kerstin Lenk (Graz)
18:30 –18:30	Investigating the effects of inter-phase gap on ECAPs and AGFs with a combined cochlear and vestibular inner ear model Björn Vey (Innsbruck)

| 18:30 –18:30 | Comparative evaluation of lung recruitment strategies in high-frequency oscillatory ventilation – *Ex Vivo* study |
| | Richard Pasteka (Vienna) |

| 18:30 –18:30 | Bayesian input model selection for wrist control by a bionic hand |
| | Abdul-Khaaliq Mohamed (Johannesburg) |

| 18:30 –18:30 | Lumen reconstruction of covered stents for numerical simulation of thrombosis risk |
| | Finja Borowski (Rostock) |

| 18:30 –18:30 | Continuous monitoring of carbon dioxide removal of native and membrane lung in a porcine model of lung injury |
| | Andreas Döcke (Dresden) |

18:30 –19:30   Robotics

Robotics

| 18:30 –18:30 | Homogeneous delivery of cardiomyocyte aggregates – Tackling cell sedimentation in robotic injection systems |
| | Raphael Moenkemoeller (Garbsen) |

| 18:30 –18:30 | Multi-robot systems for advanced multi-axial biomaterial testing |
| | Jan Peters (Garbsen) |

| 18:30 –18:30 | Optimizing reachability and wrench estimation in robotic ultrasound via probe holder geometry |
| | Jonas Osburg (Lübeck) |

| 18:30 –18:30 | Scenario-specific tailoring of soft continuum robots in minimally invasive surgery |
| | Johann Licher () |

| 18:30 –18:30 | Optimizing the load capacity of a compliant-mechanism-based microplate gripper for biomedical lab automation |
| | Leon Budde (Garbsen) |

| 18:30 –18:30 | Development of a robotic test stand for testing vibroacoustic sensor units in needle insertion experiments |
| | Yeqingqing Huang (Magdeburg) |

18:30 –18:30	Towards a soft robotic assistance system for interventional magnetic resonance imaging Jan Peters (Garbsen)
18:30 –18:30	Towards robotic surgical interventions augmented by image recognition using artificial intelligence: The potential of automated CTS and cataract surgery Clemens Julian Sailer (Villingen-Schwenningen)

18:30 –19:30   Surgical Support Systems

Surgical Support
Systems

18:30 –18:30	Adaptive ensemble learning for robust surgical phase recognition Flakë Bajraktari (Stuttgart)

18:30 –19:30   Tissue Engineering

Tissue Engineering

18:30 –18:30	Engineering a 3D model to study ECM interactions and drug resistance in Glioblastoma Emre Cicek (Waterloo)

18:30 –19:30   Late breaking poster

Late breaking poster

18:30 –18:30	Internationalization of teaching in life science engineering – A train-the-trainer approach Sarah Langer (Vienna)
18:30 –18:30	Enhancing Medical Device Data Integration for Crisis-Resilient Healthcare Systems: A National Survey of Hospital Infrastructure Markus Kmentt (Graz)

18:30 –18:30	Computational Modeling of Systemic Lupus Erythematosus and Epidermolysis Bullosa: A Systems Biology Approach Henric Skytt (Värmdö)
18:30 –18:30	Model-based analysis of individual electrically stimulated nerve fibers Rebecca Felsheim (Oldenburg)
18:30 –18:30	Development of basic model experiments to investigate the failure mechanism during the implantation of hip joint endoprosthesis by means of acoustic emission analysis AEA Benedict Schneider (Gießen)
18:30 –18:30	Image-based Framework to Characterise Tumor Tissue Cutting for In Vitro Culture and Drug Testing Nikita Norkin (Lausanne)

20:00 –23:59   **Social Event**

EG.W.01

11.09.2025

08:45 –09:15   **Keynote 5**
Bionic Extremity Reconstruction

EG.W.01

Chair   Winfried Mayr (Wien)

08:45 –09:15   Bionic Extremity Reconstruction
                     Oskar Aszmann (Wien)

08:45 –11:45   **Poster exhibition**

Foyer

09:30 –10:30   **Session**
                   Biomechanics

EG.W.01

Chair   Barbara Röhrnbauer (Winterthur)

                   Stephen Ferguson (Zürich)

09:30 –09:45   Quantifying the microscale kinematics of nanofibrous membranes by *in-situ* tensile testing

                   Jonas Hofmann (Winterthur)

09:45 –10:00   Human lower leg parameter estimation using a passive exoskeleton structure

                   Raphael Hoffmann (Aachen)

10:00 –10:15   Classification of walking patterns from sEMG using hybrid CNN-LSTM model

                   Hariharan Sriram (Tiruchirappalli)

10:15 –10:30   Advancing tissue engineering with a 3D-printed stretching device
                   Yasmin Kuhn (Aachen)

09:30 –10:30   **Session**
                   Signal processing

02.O.18

Chair   Kerstin Pansegrau (Hall in Tirol)

                   Jens Haueisen (Ilmenau)

09:30 –09:45   Influence of pacemaker artifacts on deep neural networks for ECG classification

                   Lennart Graf (Göttingen)

09:45 –10:00   Microsleep detection with very deep learning architectures
                   Martin Golz (Schmalkalden)

10:00 –10:15	Differences of Hjorth parameters between healthy population and patients with Valvular heart disease in electrocardiograms, seismocardiograms, and gyrocardiograms Szymon Siecinski (Katowice)
10:15 –10:30	Contactless measurement of pulse transit time between upper extremities during simulated stenosis Samuel Tauber (Duisburg)

09:30 –10:30 Session
Surgical support systems

02.W.18

Chair	Daphne Schönegg (Allschwil)
	Erik Schkommodau (Muttenz)

09:30 –09:45	Intuitive control of a robotic arm via inertial sensors and EMG for assistive applications Dominik Fromme (Dortmund)
09:45 –10:00	Surgical instrument detection on the instrument stand using neural networks Linus L. Kienle (Berlin)
10:00 –10:15	Integrating biological tissue suturing into minimally-invasive surgical training with the Lübecker Toolbox simulator Sami Beirami (Göttingen)
10:15 –10:30	Investigation on drilling method during skull surgery as a basis for the development of an assistance system for noise-reducing bone surgery in the head region Katarina Gille (Dresden)

09:30 –10:30 **Session**
Telemedicine & optical methods

02.S.21

Chair Thomas Stieglitz (Freiburg im Breisgau)

Martin Styner (Allschwil)

09:30 –09:45 Evaluation of an optimized telemedicine platform for needs-based care in outpatient nursing
Matthias Gaßner (Kempten)

09:45 –10:00 Integrated photonic sensor chips for rapid, label-free point-of-care diagnostics
Jakob Reck (Berlin)

10:00 –10:15 The demand and the path to trustworthy continuous blood glucose monitoring
Maximilian Lübke (Erlangen)

10:15 –10:30 Development of novel mass spectrometric instrumentation for real-time monitoring of propofol and metabolic responses in pediatric anesthesia
Pablo Sinues (Basel)

09:30 –10:30 **Session**
Biomaterials

02.W.03

Chair Gerrit Paasche (Hannover)

Ioana Slabu (Hamburg)

09:30 –09:45 Methods for characterization of nanofiber nonwovens for biomedical applications – Overview and future demands
Andreas Götz (Rostock)

09:45 –10:00 Laser-induced periodic surface structures for controlled cell growth on vascular stents
Swen Grossmann (Rostock)

10:00 –10:15	*In vitro* test bench for investigating cell adhesion in hydrocephalus shunts
	Lucas Thieme (Potsdam)
10:15 –10:30	Human *in vitro* endometriosis microphysiological system
	Adrien Roux (Genève)

09:30 –10:30   Focus Session
FS SFB 1261: Magnetoelectric sensor system aspects

02.W.09

Chair	Robert Bergholz (Kiel)
	Rahil Radfar (Kiel)
09:30 –09:45	Extended mBvD model for MEMS delta-e magnetic field sensors
	Patrick Wiegand (Kiel)
09:45 –10:00	Converse magnetoelectric sensor combining low noise, high sensitivity and broad bandwidth
	Felix Schlichting (Kiel)
10:00 –10:15	Reducing noise in magnetoelectric sensors with magnetic multilayers
	Elizaveta Spetzler (Kiel)
10:15 –10:30	Implementation of a segmented PLL for readout of highly sensitive SAW magnetometers
	Henrik Wolframm (Kiel)

09:30 –10:30   Focus Session
FS KI in der Aus- und Weiterbildung der BMT

02.O.09

Chair	Karsten Seidl (Duisburg)
	Maria Henke (Gießen)
09:30 –09:50	KI in der Lehre - Best (?) practices
	Karsten Seidl (Duisburg)

09:50 –10:30	Diskussion

10:30 –11:00 **Offene Sitzung des DGBMT Fachausschusses Aus- und Weiterbildung**
Offene Sitzung des DGBMT Fachausschusses Aus- und Weiterbildung?

12.W.01

11:00 –11:30 **Keynote 6**
Soft robotic technologies for disease modeling and therapy

EG.W.01

Chair	Christian Baumgartner (Graz)
11:00 –11:30	Soft robotic technologies for disease modeling and therapy
Debkalpa Goswami (Graz)

11:45 –13:15 **Session**
Biomedical instrumentation

EG.W.01

Chair	Thomas Quirin (Muttenz)
	Steffen Leonhardt (Aachen)
11:45 –12:00	Development of an argon cold plasma treatment center and measurement of patient leakage current
Yves Weiland (Trier)
12:00 –12:15	Environmental impact of single-use versus reusable flexible endoscopes – A systematic review
Juliane Mayer (Stuttgart)

12:15 –12:30	An energy-optimized medical oxygen concentrator for low-resource settings Katja Schartner (Ulm)
12:30 –12:45	Hand-powered centrifugal platform for fast plasma-based diagnostics Adrian Pfister (Stuttgart)
12:45 –13:00	Bulk multi fourier horn resonant medical droplet generation with resonant control at 500kHz Sebastian Voigt (Chemnitz)
13:00 –13:15	In-vitro modelling and measurement of focused ultrasound fields for use in sonodynamic therap Thomas Hauser (Winterthur), Mathias S. Weyland (Winterthur)

11:45 –13:15 Session
Image & signal processing

02.O.18

Chair	Johannes Vorwerk (Innsbruck) Philippe Cattin (Allschwil)
11:45 –12:00	Group-wise deep brain normalization pipeline optimization for speed and quality Dorian Vogel (Muttenz)
12:00 –12:15	Simplified inverse model for basic lumen shape identification Ashish Bhave (Villingen-Schwenningen)
12:15 –12:30	Radial pulse rate estimation from brightness-mode ultrasound imaging Craig Carlson (Espoo)
12:30 –12:45	Passive acoustic mapping of cavitation in heterogeneous speed of sound distributions using the fast marching method Christian Marinus Huber (Erlangen)
12:45 –13:00	Superpixel-based endmember extraction for hyperspectral endometriosis detection Stefan Patzke (Dortmund)

13:00 –13:15	Structural MRI based Subtyping of Neurodevelopmental Disorders
	Martin Styner (Allschwil)

11:45 –13:15 Session
Movement analysis

02.W.18

Chair	Ardian Jusufi (Zurich)
	Stephen Ferguson (Zürich)

11:45 –12:00	Investigating the effect of sitting position on upper body range of motion in cross-country sit skiing
	Hatim Barioudi (Dortmund)
12:00 –12:15	Brace effects on spatiotemporal gait parameters from pedobarography in adolescent idiopathic scoliosis
	Anke Tschirschky (Dresden)
12:15 –12:30	Real-time pose estimation of preterm infants using depth images
	Tobias Vogelsang (Augsburg)
12:30 –12:45	Assessing sit-to-stand motion execution using 6D IMUs only – A proof of concept
	Timo Kuhlgatz (Garbsen)
12:45 –13:00	Evaluation of a new magnetic approach for hand motion tracking
	Tobias Schmidt (Kiel)
13:00 –13:15	Hearing Instrument with Fall Detection
	Alia Lemkaddem (Neuchatel)

11:45 –13:15 Focus Session
FS Role of wearable technology

02.S.21

Chair	Mathieu Lemay (Neuchâtel)
	Fabian Braun (Bern)

11:45 –12:00	Rethinking Blood Pressure Monitoring: How Cuffless Monitoring Is Transforming Hypertension Care Tiago Almeida (Neuchâtel)
12:00 –12:15	Piloting photoplethysmographic smartphone-based atrial fibrillation screening in Austria Dieter Hayn (Wien)
12:15 –12:30	Reducing noise in e-textile health wearbles using remotely-powered, single-wire active electrodes James Rosenthal (Neuchatel)
12:30 –12:45	Smart sensing system for improved chronic wound management Lars Gierschner (Krefeld)
12:45 –13:00	Development of a pro-adaptive wrist-worn wearable device for Parkinson disease symptoms – Concept and initial approach Sinan Yavuz (Krefeld)
13:00 –13:15	From Wearables to New Evidence In Drug Development Sylvain Zorman (Pensacola, FL)

11:45 –13:15 Focus Session
FS Biomaterials and Implants V – Additive manufacturing and bioprinting

02.W.03

Chair	Verena Scheper (Hannover) Daniel Seiler (Muttenz)
11:45 –12:00	3D-printed ceramic bone substitutes with gyroid microarchitecture functionalized with MSC- and osteoblast-derived exosomes Franz E. Weber (Zurich)
12:00 –12:15	3D printed bronchoscopy simulator for teaching purposes Max Barchet (Pforzheim)
12:15 –12:30	In-situ-surface modification during 3D-printing by cold plasma technology Kristina Lachmann (Braunschweig)

| 12:30 –12:45 | Effect of powder reuse on the properties of WE43 magnesium alloy for powder bed fusion with laser beam of biomedical implants
Giulio Cavaliere (Uppsala) |
|---|---|
| 12:45 –13:00 | Development of a three-dimensional scaffold from melt electrospinning and writing using the example of the meniscus
Cornelia Fano (Denkendorf) |
| 13:00 –13:15 | Investigation of influence of path spacing and layer orientation on the dimensional accuracy of additively manufactured CPC scaffolds
Martin Pendzik (Dresden) |

11:45 –13:15　Focus Session
FS SFB 1261: Applications of magnetoelectric sensor systems

02.W.09

| Chair | Gerhard Schmidt (Kiel)
Elizaveta Spetzler (Kiel) |
|---|---|
| 11:45 –12:00 | Probable surgical Applications profiting from ME sensor systems – current needs and visionary outlook
Robert Bergholz (Kiel) |
| 12:00 –12:15 | Medically-focused hardware setup for magnetic localization
Moritz Boueke (Kiel) |
| 12:15 –12:30 | Enhanced manufacturing of motion-tracking systems comprising Si MEMS gyroscopes and magnetoelectric sensors
Lucie Bangert (Kiel) |
| 12:30 –12:45 | Development of magnetically labelled molecularly imprinted polymers – A comparison of conventional and computational recipes
Rahil Radfar (Kiel) |
| 12:45 –13:00 | Compact and unshielded setup for magnetic nanoparticles characterization using a gradiometer-based approach
Giuseppe Barbieri (Kiel) |
| 13:00 –13:15 | tba |

11:45 –13:15	**Aus- und Weiterbildung – Aktuelle Entwicklungen in der Aus- und Weiterbildung der BMT im deutschsprachigen Raum**

02.O.09

Chair	Silvio Dutz (Zwickau)
	Daniel Baumgarten (Innsbruck)
	Karsten Seidl (Duisburg)
	David Hradetzky (Muttenz)

11:45 –11:55	Ein erster Überblick über aktuelle Entwicklungen in der Aus- und Weiterbildung der BMT im deutschsprachigen Raum
	Karsten Seidl (Duisburg)
11:55 –12:25	Innovative Studiengänge der Biomedizintechnik: Einblicke und Perspektiven
	Silvio Dutz (Zwickau), Daniel Baumgarten (Innsbruck), Karsten Seidl (Duisburg), David Hradetzky (Muttenz)
12:25 –13:15	Studiengänge im Wandel – Diskussion mit Lehrenden und Studierenden

13:15 –13:45	**Awards + Closing** **Awards + Closing - Studentenwardees + SSBE Award**

EG.W.01

13:15 –13:15	Evaluating the effects of left bundle branch block in an electromechanical heart model
	Carola Kruthoff (Karlsruhe)
13:15 –13:15	An energy-optimized medical oxygen concentrator for low-resource settings
	Katja Schartner (Ulm)

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Preliminary program, changes possible at any time

13:15 –13:15   Molecular and optical degradation pathways in polyimide substrates – An accelerated aging study for implantable devices
Anagha Navale (Freiburg im Breisgau)

13:15 –13:15   3D magnetomotive displacement estimation of magnetic nanoparticles using a matrix transducer
Christian Marinus Huber (Erlangen)

13:15 –13:15   Towards optimal gesture selection in asynchronous EEG-based BCIs
Patrick Suwandjieff (Graz)

13:15 –13:15   Scalable manufacturing of microphysiological systems to extend the production volume
Hedvika Maxová (Dresden)

13:15 –13:15   Ultrashort time echo MRI sequence to quantify vertebral bone morphology in young adults
Salvatore Conticello (Zürich)

13:15 –13:15   Modeling electrode response to post-implantation conditions with electrochemical impedance spectroscopy
Larissa Graner (Freiburg im Breisgau)

13:15 –13:15   Individual stress reactions induced by mistakes during minimally-invasive surgical training
Maryam Abbasi (Göttingen)

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