

Scientific Program

Tuesday, 07.07.2026

8:00 – 8:55	Registration Technical Checkup Flash Talk Session A Hanging Posters
8:55 – 9:15	Welcome Note
9:15 – 9:55	Keynote: Physics-Based Machine Learning for Computational Engineering Across Scales Prof. Dr.-Ing. Fadi Aldakheel <i>Chair: Meike Stiesch</i>
9:55 – 10:15	Coffee Break Technical Checkup Flash Talk Session B
10:15 – 11:45	Flash Talk Session A – Electrochemistry, Analytics and Sensors <i>Chair: Fadi Aldakheel & Katharina Frings</i>
11:45 – 12:45	Poster Session A – Electrochemistry, Analytics and Sensors
12:45 – 13:30	Lunch Break
13:30 – 14:10	Keynote: Electrochemical Deposition for Functional Surfaces and Interfaces: Principles, Applications, and Analysis Prof. Dr. Masahiro Kunimoto <i>Chair: Michael Schöning</i>
14:10 – 15:40	Flash Talk Session B – Materials, Structures and AI <i>Chair: Masahiro Kunimoto & Imran Rahim</i>
15:40 – 16:00	Coffee Break Technical Checkup Flash Talk Session C
16:00 – 17:00	Poster Session B – Materials, Structures and AI
17:00 – 17:40	Keynote: From Lost Limb to Restored Connection: AMI and other Mechanoneural Interfaces for Human-Machine Integration PD Dr. Jennifer Ernst <i>Chair: Andrej Kral</i>
17:40 – 18:00	Organizational Remarks Announcement EnFI 2027
18:00 – 19:00	Transfer to the Water Sports Club Altwarmbüchen
19:00 – 23:30	Evening Reception with Dinner and Networking

Wednesday, 08.07.2026

8:00 – 8:30	Arrival
8:30 – 9:30	Flash Talk Session C – Biomedical and Systems Engineering <i>Chair: Patrick Evers & Tatiana Blank</i>
9:30 – 10:15	Poster Session C – Biomedical and Systems Engineering
10:15 – 10:35	Coffee Break Technical Checkup Flash Talk Session D
10:35 – 11:15	Keynote: Microfluidics, Cells and Organoids Prof. Dr. Christine Ruffert <i>Chair: Steffi Krause</i>
11:15 – 12:15	Flash Talk Session D – Microfluidics, Cells and Organoids <i>Chair: Christine Ruffert & Sven Ingebrandt</i>
12:15 – 13:00	Lunch Break
13:00 – 13:45	Poster Session D – Microfluidics, Cells and Organoids
13:45 – 14:05	Coffee Break with Poster Evaluation
14:05 – 14:20	Poster Award Ceremony & Farewell Note

Session A	Electrochemistry, Analytics and Sensors
A1	Silk fibroin–riboflavin substrates for transient magnesium temperature sensors M. Zach , S. Achtsnicht, M. Welden, M. Rodrigues, B. Isella, A. Kopp, M. Keusgen, M. J. Schöning
A2	How viruses gate a sensor: Modelling C-V response of TMV modified EISCAPs and experimental data M. Welden , A. Poghossian, C. Wege, M. J. Schöning
A3	pH sensitive hydrogels for plasmonic-based biofluid sensing K. El-Jamal , A. Ahmed, N. Heine, K. Doll-Nikutta, M. L. Torres-Mapa, A. Heisterkamp
A4	Surface treatment using plasma sterilization - generation, application and mechanisms of action S. Achtsnicht , H. Geissler, M. J. Schöning
A5	Dynamic reconstruction of anodized Fe-Co-Ni spinel oxide functional interfaces during the oxygen evolution reaction (OER) T. Nagao , S. Kitano, M. Iwai, K. Fushimi, H. Habazaki
A6	A synthetic receptor approach for the rapid identification of clinical cancer biomarkers A. Alsholi , S. Lyons, C. Hart, R. Bristow, A. Sachdeva, M. Peeters
A7	Template-bacteria-free engineering of biomimetic polymer interfaces for selective <i>E. coli</i> capture and detection D. Özsoylu , E. Börmann-El Kholly, P. Wagner, M. J. Schöning
A8	Combinatorial screening of anodic Ti-Hf oxides for memristive switching properties E. Atanasova , A. Minenkov, A. Greul, A. W. Hassel, A. I. Mardare
A9	Design and implementation of a catheter-integrated biosensor based on molecularly imprinted polymers for histamine detection B. Batool , S. B. Sichani, J. Tack, P. Wagner
A10	Electrospinning of PDMS elastomer for hydrophobic surface coatings J. Drexler , T. Bode, M. Mueller, G. Paasche, B. Glasmacher
A11	Non-enzymatic creatinine detection using electroactive molecularly imprinted polymers: toward point-of-care sensing S. Garg , A. Alsholi, G. de Melo Cossani, P. Singla, R. D. Crapnell, C. E. Banks, M. Peeters
A12	Temporally and spatially resolved pH in commensal and pathogenic oral biofilms <i>in vitro</i> M. Duitscher , N. Heine, M. Stiesch, K. Doll-Nikutta
A13	Effect of UV irradiation on the flatband voltage of chemical sensors with field-effect structures T. Yoshinobu, H. Iken , T. Sato, K. Miyamoto, T. Wagner, M. J. Schöning

A14	Spin-dependent wetting of chiral molecules via CISS M. Biswas , M. Villanueva, A. Gupta, R. Naaman, P. Losada Pérez, Y. H. Geerts
A15	Building a portable measurement platform to detect per- and polyfluoroalkyl substances (PFAS) in soil and wastewater T. Karschuck , J. Pettrak, M. J. Schöning, T. Wagner
A16	Raman-based visualization of diffusion-driven delamination at metal–polymer–interfaces of active implantable medical devices (AIMDs) C. Angerer , A. Onken, G. Fischer, T. Doll, S. Hild
A17	Effectiveness of deconvolution methods for surface reconstruction in AFM L. Lehnert , L. Helgest, E. Kunnen, R. Thoelen, H. Möbius
A18	Biofilm-dependent MG-63 responses in the 3D INTER _b ACT-B peri implant model B. Malekhamadi , M. Kheirmand-Parizi, C. Mikolaj, M. I. Rahim, A. Winkel, K. Doll-Nikutta, H. Menzel, D. Wirth, M. Stiesch
A19	BDNF-optimized mesenchymal stem cells for therapeutic application in the inner ear E. Wiebe , S. Christoffers, C. Blume
A20	Development of flexible polyimide devices incorporated with polyvinylidene fluoride for applications as piezoelectric sensors and supercapacitors G. Badagnani de Carvalho , J. R. Siqueira Júnior, M. J. Schöning
A21	Neodymium-Samarium alloys with improved mechanical properties F. Reiter , H. Zengin, A. Ernst, A. W. Hassel
A22	Device-to-device matching of extended-gate field-effect transistors with atomic-layer deposited high-k Ta ₂ O ₅ as pH-sensitive material M. Knoll , A. Poghossian, G. Elias, S. Meier, E. Müllner, M. Keusgen, M. J. Schöning
A23	Titanium-hydrogel-interaction in a peri-implant <i>in-vitro</i> model L. Heine , M. Duitscher, M. L. Torres-Mapa, K. Doll-Nikutta, M. Stiesch
A24	Structural and electrochemical investigation of electrodeposited PEDOT:PSS microelectrodes Q. Li , D. Tang, S. Ingebrandt, Z. Gao
A25	Surface functionalization with photoelectrons G. Janzen , A. Onken, P. Torgau, T. Doll, M. Müller, P. Born
A26	Development of molecularly imprinted polymers as an indirect sensing approach for spore-forming bacteria detection A. Guzman-Landero , H. Diliën, B. van Grinsven, R. Arreguin-Campos
A27	Modular raman image analysis of Calcium-crosslinked alginate hydrogels D. Schäffl , S. Hild
A28	PEDOT:PDA as a promising new polymer for the development of MIPs in electrochemical sensors M. W. Konrad , P. Wagner, I. Taurino

Session B	Materials, Structures and AI
B1	Enhanced corrosion stability of Scandium-rich Magnesium alloy thin films in simulated body fluid H. Zengin , A. I. Mardare, G. Popescu-Pelin, G. Socol, A. W. Hassel
B2	Studying of organic semiconductors in light-addressable potentiometric sensors (LAPS) S. Kimoto , Y. Hemmi, A. Ichikawa, H. Matsui, Y. Guo, F. Hirose, C. F. Werner
B3	PECVD preparation of silicon carbide layers as passivating contacts for POLO solar cells S. Börnert , F. Wunsch, R. Peibst, J.-D. Kähler, T. Pernau, J. Krügener
B4	Ultrasensitive electrochemical detection of penicillin G using electroactive molecularly imprinted polymers for sepsis monitoring P. Singla , S. Garg, T. Felton, M. Peeters
B5	Superparamagnetic iron oxide nanoparticles in niosomal systems for biomedical applications S. Kumar , V. Maurer, G. Garnweitner
B6	ML-based porous metamaterials design for hip implant stability B. Ayouch , M. Haertlé, F. Aldakheel
B7	Influence of various oxygen levels on tissue-biofilm interaction in an implant-tissue-oral-bacterial-biofilm model Y. Sun , G. A. Grassl, M. Meurer, M. von Köckritz-Blickwede, A. Winkel, C. Mikolai, M. Stiesch
B8	Investigation of TiNx thin film deposited by ion beam deposition and sputtering for electronic and bioelectronic applications V. H. Vu , J. Heiss, D. Khan, V. Pachauri, S. Ingebrandt, X. T. Vu
B9	Melt electrowritten fibrous scaffolds for bone tissue engineering: From architectural design to dynamic cell culture M. Yousaf , S. Reichl, I. Constantinou
B10	An advanced three-dimensional peri-implant tissue model to investigate host-microbe interactions A. Gaikwad , M. I. Rahim, A. Winkel, D. Wirth, H. Menzel, M. Stiesch
B11	Diabetes-associated host dysregulation at the peri-implant tissue interface in an immunocompetent 3D cell culture model T. Nawaz , M. I. Rahim, R. Lohar, H. Haller, M. Stiesch
B12	Interface-induced shear control for enhanced flow of shear-thinning silicones in micro-annular printheads T. Schulz , A. Onken, R. Johow, Y. Xi, T. Biermann, T. Doll

B13	Computational modeling of stent failure during crimping and deployment in coronary arteries A. Tragoudas , G. A. Holzapfel, F. Aldakheel
B14	Biodegradable nanoMIP interfaces enable selective IL-6 detection in human perilymph M.-H. Nguyen , T. Doll
B15	Microwave-assisted preparation of bone regeneration materials H. Christmann , M. Widerspan, M. Lietzow, P. Behrens, N. Ehlert
B16	Direct detection of <i>Staphylococcus aureus</i> via microparticle imprinted polymers T. V. M. Bogaardt , H. Diliën, B. van Grinsven, R. Arreguin-Campos
B17	Biocompatible surface modification of dental implants E. Miller , C. Boukari, M. Veith
B18	Optimized implants through control of stem and immune cells: Modulation of TAK1 activity Y. Roger , J. Libnow, N. Lachmann, S. Immenschuh, A. Hamm, A. Hoffmann
B19	Simulation of biofilm growth and drug-induced degradation O. Höchel , R. Mukherjee, M. Soleimani, M. Stiesch, S. P. Szafranski, P. Junker
B20	Photovoltaic-driven organo-electronic ion pump for wireless retinal ionic stimulation K. Devkota , S. Ingebrandt, Z. Gao
B21	Development of an integration process for a high-density electrode array for future retinal implant F. Molasarvestani , S. Ingebrandt, X. T. Vu
B22	Electrostatics of thin-film MOS devices for gas electroadsorption V. M. Fuenzalida , M. Moreno-Gutberlet, T. Doll
B23	Single enzyme nanocapsules for highly stable & robust bio-sensing Dhanjai
B24	Characteristic pH profiles in a dual-species biofilm model associated with musculoskeletal implant infections L. Püttmann , M. Duitscher, N. Heine, M. Stiesch, K. Doll-Nikutta
B25	Electrospun SLIPS as anti-adhesive biomaterial coatings: Effects on wettability and biological interactions T. Bode , J. Drexler, G. Paasche, B. Glasmacher, M. Mueller
B26	Bioimpedance model fitting for clinical biomarker quantification J. Brüning , T. Hilbel, M. Schlüter
B27	A CFD–DEM framework for predicting thermo-mechanical drying behaviour of mRNA-LNP vaccine droplets J. Guo , S. Wolf, J. H. Finke, C. Schilde

B28	The corrosion of titanium dental implants in dental hygiene products A. Greul , C. Kleber, C. von See, A. W. Hassel
B29	Influence of thiol-based self-assembled monolayers on the electrochemical behavior of combinatorial Ag-Cu thin films M. Lukina , M. Hofinger, D. Farka, A. W. Hassel, A. I. Mardare

Session C	Biomedical and Systems Engineering
C1	Insights in biomedical applications of magnetic nanoparticles from nonequilibrium dynamic relaxation simulations U. M. Engelmann , S. Bolte, B. Simsek, M. B. Abbas
C2	Impact of ionophore concentration on sensor performance of Na ⁺ -ion sensitive field-effect capacitors S. Beging , P. Liegmann, K. Miyamoto, T. Wagner, T. Yoshinobu, M. J. Schöning
C3	Analysing functionalisation of FETs used in biosensing with KPFM W. Łuczak , A. W. Hassel, R. Hasler, C. Kleber
C4	Towards tuneable biomineralization: Morphology studies of calcium carbonate formation in silk based solutions A. Hauseeder , D. Schäffl, G. Javanshir, S. Hild
C5	A multiplexed impedimetric biosensor platform for lung-disease biomarker detection in exhaled breath condensate S. Bakhshi Sichani , M. Khorshid, J. Hürttlen, M. M. Menger, J. M. Hohlfeld, G. Pohlmann, P. Lieberzeit, P. Wagner
C6	Innovative sensing to optimise parkinson's disease management X. Liu , O. Jamieson, A. Casson, M. Peeters
C7	In vitro investigation of electrospun PVDF-TrFE fiber mats regarding their influence on electrical impedance and cell proliferation V. Braemer , J. Drexler, L. Kötter, B. Glasmacher, G. Paasche
C8	Long-term human brain-slice electrophysiology using a flexible microelectrode interface B. Chowdhury , H. Koch, S. Ingebrandt, Z. Gao, F. Sommerhage
C9	Qualification of a swellable hydrogel–silicone bimorph for implantable actuation E. Dosdogru , A. Onken, P. Torgau, M. Müller, T. Doll
C10	Medium-dependent Mg ion release and biological responses to WE43 magnesium alloy Q. Duan , R. Lohar, A. Winkel, M. Stiesch
C11	Double-imprinted nanoMIPS for targeted drug delivery in NSCLC S. Tiwari , S. Garg, H. H. Rattu, P. Singla, T. Witney, M. Peeters

C12	Accurate concentration prediction in multispecies bacterial samples using FTIR spectroscopy and deep learning K. A. Frings , E. Baron, L. Baumann, N. Heine, K. Doll-Nikutta, M. L. Torres-Mapa, A. Heisterkamp
C13	Effective contact-area investigation in polymer-based TENGs P. Mattauch , A. Hilgert, S. Tremmel, G. Fischerauer
C14	Finite element modelling for gentle removal of total hip arthroplasties by means of induction heating P. Evers , M. Reulbach, S. Herbst, E. Jakubowitz, F. Nuernberger
C15	Green chemistry meets thermal sensing: Sustainable metal MIP-based sensors for L-leucine detection A. I. Furtado , J. W. Lowdon, V. D. B. Bonifácio, R. Viveiros, T. Casimiro, B. van Grinsven
C16	Mussel-inspired nanoprecipitation coatings for complex geometries M. Leuker , R. Berger, M. Weinhart
C17	MatrixModel: Building a computational model of the HSPC niche J. Käsehagen , S. Rudorf
C18	Adjacent hydrogel thin-films for a competitive cell culture assay J. Baron , C. Boukari, E. Miller, C. Hiepen, M. Veith
C19	Establishment of personalized immunocompetent 3D peri-implant-mucosa models using patient-derived macrophages R. Lohar , A. Gaikwad, A. Winkel, S. P. Szafranski, M. I. Rahim, M. Stiesch
C20	Systematic study of Ytterbium influence in binary alloying systems M. Hofinger , A. W. Hassel

Session D	Microfluidics, Cells and Organoids
D1	Fully additive neural implants ... and understanding why they fail A. Onken , E. Dosdogru, B. Zerrick, E. Eiken, T. Doll
D2	Continuous millifluidic synthesis of ZnO nanostructures L. Arndt , S. Okeil, G. Garnweitner
D3	Corrosion sensing for cochlear implants T. Blank , N. Prenzler, T. Lenarz, C. Klose, H. J. Maier
D4	Streptavidin-based anti-adhesive biofunctionalization for dental implants C. Boukari , E. Miller, K. Doll-Nikutta, M. Stiesch, M. Veith
D5	Advancing a multi-sensor array platform for real-time drinking water quality surveillance D. Özsoylu, E. Börmann-El Kholly , S. Achtsnicht, M. J. Schöning

D6	Evaluation of host responses to biofilms with distinct pathogenic potential using a 3D macrophage-containing INTER _b ACT model S. Chen , M. I. Rahim, A. Winkel, K. Doll-Nikutta, M. Stiesch
D7	Controlling adhesion of bacteria and host tissue cells by polyelectrolyte multilayer coatings on titanium-based biomaterials Y. Guo , T. Andreeva, A. Jahn, O. Akbas, D. Strauch, H. Hartwig, A. Greuling, A. Winkel, R. Krastev, M. Stiesch
D8	Adhesion characteristics of <i>Candida albicans</i> on polymer-based materials S. Tamjidtash , L. Brose, M. Stiesch, S. Hahnel, K. Doll-Nikutta, N. Kommerein
D9	Development of an electrochemically synthesized RNA sensor N. Gellert , M. Knabel, D. A. Contreras Pérez, T. Doll
D10	Plasma-engineered coatings for the reduction of biomaterial adhesion J. Reus , D. Püllmann, J. H. Finke, K. Lachmann
D11	A biosensor with simplified target recognition for early detection of leprosy from serum of household contacts F. Di Scala , A. Parreiras de Jesus, A. Guzman Landero Renteria, T. Houben, H. Dilien, T. Cleij, V. Myndrul, B. van Grinsven
D12	Additively manufactured drug delivery implants made from photo crosslinked methacrylated pullulan M. Knabel , T. Seel, V. Scheper, J. Körner
D13	New platform for microfluidic structuring in glass B. Schneider , M. J. Schöning, T. Wagner
D14	Hormone-driven modulation of implant-associated biofilms R. Mukherjee, M. Thomsen , M. Stiesch, S. P. Szafranski
D16	Photoelectrochemical sensing and mapping of flow velocity in microfluidics Y. Fang , R. Li, B. Zhou, J. Gorecki, J. Zhao, J. Briscoe, K. Hing, S. Krause
D17	Creating biomimetic 3D <i>in vitro</i> models of the bone-marrow / implant interface M. Brockert , J. M. Hornbostel, M. Haertlé, A. Hoffmann, C. Lee-Thedieck
D18	Direct 3D printing of soft neural implants onto flexible PCB substrates B. Zerrik , A. Onken, T. Doll
D19	Fabrication and preliminary optimization of an <i>in situ</i> written PEGDA membrane in a quartz glass microfluidic chip L. M. Ehlers , L. Rennpferdt, H. K. Trieu
D20	Bacteria-surface interaction on smooth and rough titanium: Correlation between surface characteristics and bacterial adhesion S. Awerbuch , F. Fuchs, M. Stiesch, K. Doll-Nikutta