6th MEEP Symposium 2025

Fuel Cells & Electrolyser Systems

2 – 4 July, KKL, Lucerne, Switzerland

www.i-MEEP.com/**Registration**

Microbial, Enzymatic & Bio-Photovoltaic Electrochemical Reactors

Chaired by: **Prof. Johannes Gescher, Technical University of Hamburg, Germany**
Dr. Catarina M. Paquete, NOVA University Lisbon, Portugal

Session Program

DeuxièMe, 2nd Floor

Overview

Thursday, July 3

09:00	M01	Welcome, Keynote, Biocatalysts & Reaction Cascades I
10:55	M02	Scale- up, Application, Sustainability & Economics I
13:15	M03	**Poster Session**
14:20	M04	Biocatalysts & Reaction Cascades II
16:05	M05	New materials, Biohybrides & Surfaces
18:00	End	of sessions
19:20	DoL	Dinner on the Lake, 19.20 Boarding - Lake side of KKL pier 5/6 - departure 19:30, back 23.15

Friday, July 4

09:00	M06	Keynote, Scale- up, Application, Sustainability & Economics II
10:40	M07	**Poster Session**
11:30	M08	Biocatalysts & Reaction Cascades III
13:30	M09	Reactor Engineering
15:10	M10	Scale- up, Application, Sustainability & Economics III, Closing
16:15	End	**of MEEP Symposium with goodbye coffee and travel refreshment**

Details

Thursday, July 3, Morning

DeuxièMe, 2nd Floor

08:00 **On-site MEEP Registration**

Warm-up: Possibility to view & discuss mounted posters

Poster Presenters
are asked to arrive early to put up their posters so that they can be seen by those stakeholders already at the venue

Welcome

09:00 M01 Keynote on Engineered Multiheme Cytochromes
Session 1 - Biocatalysts & Reaction Cascades I

S-Chair: Johannes Gescher, Catarina Paquete

09:00	M0101	**Welcome by the Organizers & the Chair of Scientific Advisory Board (SAB)**	Michael Spirig (1), Fiona Moore (1), Olivier Bucheli (1), Ioannis Ieropoulos (2) (1) EFCF, Lucerne/Switzerland; (2) University of Southampton, Southampton/UK;
09:10	M0102	**Welcome by the Symposium Chairs**	Johannes Gescher (1), Catarina M. Paquete (2) (1) Technical University of Hamburg, Germany; (2) Nova University, Lisbon, Portugal;
Keynote	M0103	**Multiheme Cytochromes Engineered for New Chemistry**	Julea Butt University of East Anglia, Norwich/United Kingdom;
10:00	M0104	**Electron Transfer in Exoelectrogens: Use of a Heterologous Expression Strategy Combined with NMR to Unravel the Role of MtrC**	Haris Nalakath (1), Bruno M. Fonseca (1), Ricardo O. Louro (1), Jeffrey A. Gralnick (2), Catarina M. Paquete (1) (1) ITQB-University of Nova Lisbon, Oerias/Portugal; (2) University of Minnesota - Twin Cities, BioTechnology Institute and Department of Plant and Microbial Biology, Minnesota/United States;
10:15	M0105	**Transcriptional kinetics to monitor the concurrent electro-biodegradation of oily wastewater and biosynthesis of added-value products**	Constantina Varnava (1), Ioannis Ieropoulos (2), Epameinondas Leontidis (1), Argyro Tsipa (1) (1) University of Cyprus, Civil and Environmental Engineering, Nicosia/Cyprus; (2) University of Southampton, Civil and Environmental Engineering, Southampton, UK;
10:30	M0106	**Improved self-synthetized Desulfovibrio biohybrids for light-driven hydrogen production**	Américo G. Duarte, Leona Ojake, Khurram Tahir, Mónica Martins, Inês A. C. Pereira Instituto de Tecnologia Química e Biológica António Xavier, Universidade Nova de Lisboa, Oeiras/Portugal;
P	M0107	**Identification of genetic elements for transplantation of extracellular electron transfer chains**	Laura-Alina Philipp, Lukas Kneuer, Johannes Gescher Hamburg University of Technology, Institute of Technical Microbiology, Hamburg/Germany;
P	M0108	**A covalent crosslinking approach to enlarge electroactive Shewanella oneidensis biofilms**	Daniel Bauer, Lukas Kneuer, René Wurst, Johannes Gescher Technical University of Hamburg, Hamburg/Germany;
P	M0109	**Electrical wiring of Desulfovibrio cells for the sustainable production of biofuels**	Nuno Machado, Inês Pereira, Américo Duarte, Felipe Conzuelo ITQB, NOVA, Lisboa/Portugal;

10:45 Coffee Break

11:10 M02 Scale- up, Application, Sustainability & Economics I

S-Chair: Elizabeth Heidrich, Catarina Paquete

Invited	M0201	**Microbial Fuel Cells and Microbial Electrosynthesis: Transforming Glycerol-rich Wastewater and CO2 into Valuable Products**	Eileen Yu University of Southampton, Southampton, UK;
11:30	M0202	**At the edge of electrofermentation and bioelectrochemical synthesis: microbial mediated synthesis of surfactants as a direct effect of generating power in Microbial Fuel Cells**	Grzegorz Pasternak, Aleksander de Rosset, Bartosz Widera, Natalia Tyszkiewicz Laboratory of Microbial Electrochemical Systems, Department of Process Engineering & Technology of Polymer and Carbon Materials, Faculty of Chemistry, Wrocław University of Science and Technology, Wroclaw/Poland;

11:45	M0203	**Sustainable Disinfection System Powered by Microbial Fuel Cells**	Bongkyu Kim Jeonbuk National University, Division of Biotechnology, Iksan/South Korea;
12:00	M0204	**Soil Microbial Fuel Cell based system for the power supply of integrated sensors and communication systems for agricultural applications**	Ignacio Moro, Camilo Polo, Ferrán Amat, Antonio Solares, John Arturo Morales, Naroa Uria Arkyne technologies SL., R&D, Viladecans/Spain;
12:15	M0205	**Biophotovoltaics: harnessing the power of natural oxygenic photosystem**	Bin Lai, Jianqi Yuan, Hans Schneider, Jens Krömer Helmholtz Center for Environmental Research - UFZ, Microbial Biotechnology, Leipzig/Germany;
P	M0207	**Closing the Lithium Loop: Bioelectrochemical Approaches for Metal-BioRecovery**	Marina Ramirez-Moreno (1), Siddharth Gadkari (2), Jhuma Sadhukhan (2), Claudio Avignone Rossa (1) (1) Department of Microbial Sciences; (2) School of Chemistry and Chemical Engineering, University of Surrey, Guildford/United Kingdom;
P	M0208	**Development of eco-friendly electric disinfection powered by microbial electrochemical systems**	Junsang Park Jeonbuk National University, Division of Biotechnology, Iksan/South Korea;
P	M0209	**Development of Self-Powered Wastewater Treatment for Green Hydrogen Production with Microbial Electrochemical system**	Moungsung Kim Jeonbuk National University, Iksan-si/South Korea;
12:30		LUNCH on Terrasse 2nd Floor, Coffee in the poster session	

Thursday, July 3, Afternoon

DeuxièMe, 2nd Floor

13:15 M03 Poster Session

14:15 M04 Biocatalysts & Reaction Cascades II

S-Chair: Elizabeth Heidrich, Catarina Paquete

Invited	M0401	**Unlocking the Potential of Bioelectrochemical Systems: Challenges and Innovations**	Benjamin Erable Institut national polytechnique de Toulouse, BioFilm, Toulouse, France;
14:35	M0402	**Development of Microbial Fuel Cell-Based Sensor for In-Situ Water Monitoring**	Emna Hentati National Institute of Applied Science and Technology, Villeurbanne, France;
14:50	M0403	**Exploring the Potential of Mangrove Sediments in Hydrogen Producing Microbial Electrolysis Cells: a metabarcoding and chronoamperometry study**	Giorgio De Checchi (1), Paule Salvin (1), Corentin Hochart (2), Dominique Boeuf (2), Frederic Ferrer (3), Florent Robert (1) (1) Univeristé des Antilles, Chemistry, Schoelcher/Martinique; (2) SERD-Caraïbes, Lamentin/Martinique; (3) Société Anonyme de la Raffinerie des Antilles, Lamentin/Martinique;
15:05	M0404	**Optimization of Electroactive Biofilms to Upgrade Biomethane Production by Electromethanogenesis: Characterization and Performance in a Real Anaerobic Digestion Medium**	Anne-Laure Borg (1), Gaspard Bouteau (2), Quentin Aemig (2), Geoffrey Karakachian (2), Claire Dumas (3), Benjamin Erable (1) (1) Laboratoire de Génie Chimique de Toulouse, BioSyM, Toulouse/France; (2) ENGIE Lab CRIGEN, Lab Biogaz, Biomass & Wastes, Stains/France; (3) Toulouse Biotechnology Institute, Toulouse/France;
15:20	M0405	**Bio-Electrochemical System for Product Recovery from Spent Substrate Coffee waste**	Oludotun Olaoye (1), Marina Ramirez Moreno (1), Stuart Wagland (2), Claudio Avignone Rossa (1) (1) Department of Microbial Sciences; University of Surrey, Guildford/United Kingdom; (2) Faculty of Engineering and Applied Sciences, Cranfield University, Cranfield/United Kingdom;
P	M0407	**Impact of anodic surface functionalization on biofilm formation and current generation in a microfluidic bioelectrochemical system**	Berivan Akgün, Johannes Gescher Hamburg University of Technology, Institute of Technical Microbiology, Hamburg/Germany;
15:35		Coffee break in the poster area	

16:00 M05 New materials, Biohybrides & Surfaces

S-Chair: Annemiek ter Heijne, Claudio Rossa

Keynote	M0501	**Scaling up Electrodes with Biofilms**	Haluk Beyenal Washington State University, USA;
16:40	M0502	**Performance of chemical modified GAC electrodes in nitrifying and denitrifying Microbial fuel cells for high load wastewater treatment**	Verena Mandorino Kaminagakura (1,3), Vitor Cano (1), Gilmar Clemente Silva (2), Benajmin Erable (3), Marcelo Antunes Nolasco (1) (1)University of São Paulo; (2)Fluminense Federal University; (3) Chemical Engineering Laboratory, CNRS, INPT, UPS, University of Toulouse
16:55	M0503	**Enhancing microbial bio-batteries: Silk fibroin-immobilized Bacillus subtilis for scalable energy generation**	Pablo Rodríguez (1), Sebastián Gavira (1), Silvia Mena (1), Nuria Vigués (2), Salvador D. Aznar (3), Naroa Uria (4), Antonio Solares (4), Sara Santiago (5), Xavier Muñoz (1) (1) Instituto de Microelectrónica de Barcelona, CSIC, Barcelona/Spain; (2) Microbiology department, Faculty of Bioscience, Universitat Autònoma de Barcelona, Spain; (3) Instituto Murciano de Investigación y Desarrollo Agrario y Medioambiental, Murcia/Spain; (4) BIOO-Arkyne Technologies. Barcelona, Spain;
17:10	M0504	**Enhancement of Power Output in Soil Microbial Fuel Cells by Addition of 5-5-5 NPK Biochar to Carbon Felt Anodes**	Víctor Lauroba, Míriam Cegarra, Rubén Costa, Nacho Moro, Naroa Uria Bioo Arkyne technologies, R&D, Barcelona/Spain;
17:25	M0505	**Microbial fuel cells equipped with metal-coated ceramic membranes**	Yi Wang, Ioannis Ieropoulos University of Southampton, Southampton/United Kingdom;
P	M0507	**Bacterial nanocellulose membrane in microbial fuel cells application**	Priya Mukherjee (1), Sara Zdovc (2), Selestina Gorgieva (2), Fabian Fischer* (1) (1) Institute of Life Sciences, HES-SO Valais, University of Applied Sciences Western Switzerland, Sion/Switzerland; (2) Faculty of Mechanical Engineering, University of Maribor, Slovenia;

17:40 **17:55** Summary of the Day - End of Sessions

19:20 **Dinner on the Lake** - **Unique pleasure boat trip, with dinner, drinks and music, and networking in an inspiring atmosphere and picturesque landscape.**
Boarding at 19:20, lake side of KKL pier 5/6, Departure 19.30, Back 23.00 (tickets for 135.- CHF pP), short stop in Brunnen at 22.30 for direct return by train.

Friday, July 4, Morning

DeuxièMe, 2nd Floor

09:00 **M06** **Keynote on Sulfur oxidizing bacteria**
Scale- up, Application, Sustainability & Economics II

S-Chair: Ludovic Jourdin, Johannes Gescher

Keynote	M0601	**Sulfur oxidizing bacteria and their potential in Microbial Electrochemical Systems**	Annemiek ter Heijne Wageningen University, The Netherlands
09:40	M0602	**Progressing the digital transformation of bioelectro- recycling of carbon dioxide into biofuels**	Sebastià Puig Universitat de Girona, Girona/Spain;
09:55	M0603	**River water quality monitoring using Microbial Fuel Cells**	Ioannis Ieropoulos University of Southampton, Civil, Maritime & Environmental Engineering, Southampton, UK;
10:10	M0604	**Voltage reversal prevention in second and third year 1000-liter microbial fuel cell**	Fabian Fischer* (1), Sunny Maye (1), Louis Delabays (2), Jules Sansonnens (2) Maxime Blatter (1), Gérald Huguenin (2) (1) Institute of Life Sciences, HES-SO Valais, University of Applied Sciences, Sion/Switzerland; (2) Embedded-Computing Systems, Haute-Ecole Arc, St-Imier, Switzerland;
10:25	M0605	**Power-to-protein approach for the valorisation of NH3-rich pig manure-derived wastewater and CO2 from anaerobic digestion**	Gabriele Soggia (1), Andrea Goglio (1), Pierangela Cristiani (2), Ivan Luciani (1), Elisa Clagnan (1), Fabrizio Adani (1) (1) University of Milan, Department of Agricultural and Environmental Sciences, Milan/Italy; (2) RSE-Ricerca sul Sistema Energetico S.p.A., Milan/Italy;
P	M0207	**Development of Sustainable Bio-Electrochemical Systems for In Situ Urea Production in Agriculture**	John Arturo Morales, Ignacio Moro, Antonio Solares, Camilo Polo, Naroa Uria Molto Arkyne Technologies Sl, Research & Development, Viladecans/Spain;
P	M0208	**Bioelectrochemical System for Nitrogen Recovery, Hydrogen Production and Biogas Upgrading**	Jorge Luque-Rueda (1), Federico Ferrari (2), Rubén Rodríguez-Alegre (1), Carlos Andecochea Saiz (1), Pau Bosch-Jimenez (1), María M. Mico Reche (2), Eduard Borràs (1) (1) LEITAT Technological Center, Circular Economy & Decarbonization, Terrassa/Spain; (2) ACCIONA, Innovation Department, Barcelona/Spain;
P	M0209	**Impact of fluid flow on microbial community development in pilot scale MEC**	Maira Anam Newcastle University, Civil-Environmental Engineering, Newcastle upon Tyne/United Kingdom;

10:40 **M07** **POSTER SESSION, Coffee break in the poster area**

11:30 **M08** **Biocatalysts & Reaction Cascades III**

S-Chair: Haluk Beyenal, Julea Butt

11:30	M0801	**A single chamber microfluidic BES with controlled microaerobic conditions for online characterization of electroactive microorganisms**	Lorenzo Cristiani (1), Zubaish Saghir (1), Selma Formazin (2), Falk Kemper (2), Stefan Schwinde (2), Miriam Agler-Rosenbaum (1) (1) Leibniz-HKI, Bio Pilot Plant, Jena/Germany; (2) Fraunhofer IOF, Jena/Germany;
11:45	M0802	**Identifying Key Drivers of Product Formation in Microbial Electrosynthesis: A Mixed Linear Regression Analysis**	Marika Zegers, Moumita Roy, Ludovic Jourdin Delft University of Technology, Biotechnology, Delft/Netherlands;
12:00	M0803	**Dynamic Analysis of Extracellular Polymeric Substances in Electroactive Biofilms under Nutrient Variability and Long-Term Polarization: Advancing Bioelectrochemical System Optimization**	Han Xu, Rishi Gurjar, Jean-Marie Fontmorin, Benjamin Erable Laboratoire de Génie Chimique, CNRS, INPT, UPS, Université de Toulouse, Toulouse, France
12:15	M0804	**Boosting biomethane production: Advanced dual anaerobic digestion with microbial electrochemical assistance.**	Yeray Asensio, Daniel Vázquez Vázquez IQS - University Ramon Llull, Chemical Engineering and Science Materials, Barcelona/Spain;
P	M0807	**A Recovery Process for C6 Carboxylates Compatible with Microbial Electrosynthesis**	Mungyu Lee, Dimitri van der Lee, Ludovic Jourdin, Adrie Straathof TU Delft, Delft/Netherlands;
P	M0808	**Evaluation of Electro-Enzymatic Oxidation of 5-Hydroxymethylfurfural to 2,5-Furandicarboxylic Acid in an All-in-One Electrode System**	Roshini Ravi Shankar (1), Rokhsareh Akbarsadeh (2), Daniel Ohde (1), Bodo Fiedler (2), Andreas Liese (1) (1) Hamburg University of Technology, Institute of Technical Biocatalysis, Hamburg/Germany; (2) Hamburg University of Technology, Institute of Polymer Composites, Hamburg/Germany;

12:30 LUNCH on Terrasse 2nd Floor, Coffee in the poster session

Friday, July 4, Afternoon

DeuxièMe, 2nd Floor

13:30 **M09** **Reactor Engineering**

S-Chair: Benjamin Erable, Eileen Yu

Invited	M0901	**It's not who you are, it's what you do: The nexus between composition and electroactivity of microbial communities in microbial fuel cells for bioremediation and depollution.**	Claudio Avignone Rossa Department of Microbial Sciences, Faculty of Health and Medical Sciences University of Surrey, Guildford/United Kingdom;

13:50	M0902	**Optimising microbial fuel cells size for practical implementation**	Aradhana Singh, Ioannis Ieropoulos University of Southampton, Faculty of Engineering and Physical Sciences, Southampton, UK;
14:05	M0903	**A streamlined cell design to study electromethanogenesis in CO_2-impacted soils**	Pierangela Cristiani (1), Gabriele Soggia (2), Fabrizio Adani (2) (1) Riceerca sul Sistema Energetico - RSE SpA, Sustainable Development and Energy Sources, Milano/Italy; (2) Univeristà degli Studi di Milano, Department of Agricultural and Environmental Sciences, Milano/Italy;
14:20	M0903	**Abiotically mitigating methanogens in a membraneless rotating disc microbial electrolysis cell**	Ahmed Elreedy, Johannes Gescher, Mahshid Golalikhani Hamburg University of Technology, Institute of Technical Microbiology, Hamburg/Germany;
14:35		Coffee break in the poster area	
14:55	**M10**	**Scale- up, Application, Sustainability & Economics III, Closing**	S-Chair: Sebastiá Puig, Ioannis Ieropoulos
14:55	M1001	**Investigating VFA utilisation in fermentation broths as microbial fuel cell feedstock**	Jack Morton, Ioannis Ieropoulos University of Southampton, Water and Environmental Engineering Group, Southampton, UK;
Keynote	M1002	**Getting Microbial Electrochemical Technologies out of the lab: and reasons to go back in again**	Elizabeth Heidrich Newcastle University, United Kingdom;
15:50	M1003	**Summary of the Chairs** **CLOSING**	Johannes Gescher (1), Catarina Paquete (2), Ioannis Ieropoulos (3), Michael Spirig, Fiona Moore, Olivier Bucheli (4) (1) Technical University of Hamburg, Germany; (2) Nova University, Lisbon, Portugal; (3) University of Southampton, Southampton/UK; (4) European Fuel Cell Forum, Lucerne/Switzerland;

16:15 End of sessions & end of MEEP Symposium - goodbye coffee and travel refreshment

Additional options for Wednesday, 2 July

08:00 **EFCF on-site registration**, open to register also already for MEEP from 10.00am.
09:00 **EFCF 2025**: Opening, Keynoted & Sessions: A1-A5, B2-B5. See www.EFCF.com/FA
18:30 **Swiss Surprise Night** - An enjoyable exchange event with Swiss cuisine, folklore, culture and drinks.

To be booked separately, for MEEP discounted EFCF tickets on request from info@i-meep.com
Book it during online registration (CHF 135 p.p.), www.i-MEEP.com/Registration

www.i-MEEP.com

EFCF

www.EFCF.com

The European Electrolyser and Fuel Cell Forum is an international reference conference, with exhibition & tutorials in the emerging field of "Fuel Cells, Electrolysers & H2 Processing". It has

Figures

Participants: MEEP symposium this year between 70 -100 expected; EFCF between 450-550 **Exhibitors and Sponsors** between 25-35 **EFCF Tutorial participants:** - FCH: Fuel Cells &