



CONFERENCE PROGRAMME

Sunday, 19th May 2024

16:30 – 18:30	Registration
18:30 – 18:45	Opening ceremony
18:45 – 19:45	Opening lecture <i>Linkage of biocatalyst development with reaction engineering</i> Andreas Bommarius , Georgia Institute of Technology, USA Chairs: Polona Žnidaršič Plazl , University of Ljubljana, Slovenia Bruno Zelić , University of Zagreb, Croatia
20:00	Welcome party

Monday, 20th May 2024

8:00 – 9:00	Registration
9:00 – 9:55	Plenary talk <i>Droplet Microreactors for Ultrahigh Throughput Enzyme Discovery</i> Florian Hollfelder , University of Cambridge, UK Chair: László Poppe , Budapest University of Technology and Economics, Hungary
Session	ENZYMATIC MICROREACTORS
Chairs	Roland Wohlgenuth , Łódź University of Technology, Poland Jennifer Littlechild , University of Exeter, UK
10:00 – 10:30	Keynote lecture <i>Identification of opportunities and challenges of immobilized-enzyme miniaturized reactors for reaction intensification</i> Juan M. Bolivar , Complutense University of Madrid, Spain
10:30 – 10:50	<i>3D-printed microreactors for enzyme immobilization: A paradigm towards customized microfluidic screening platforms</i> Elena Gkantzou , David Schönauer, Hannah Brass, Selin Kara Institute of Technical Chemistry, Germany
10:50 – 11:20	Coffee break
11:20 – 11:40	<i>U Can Load (UCL): a Universal Microreactor for Flow Biocatalysis</i> Marijan Bajić, Sansanee Khiawjan, Stephen T. Hilton, Gary J. Lye, Marco P.C. Marques, Nicolas Szita, Frank Baganz University College London, UK
11:40 – 12:00	<i>Redesigning a 3D-printed micro bubble column reactor for biocatalytic</i> Gábor Schultz , Leonie Schumann, Ebrahim TaediNejad, Florian Kelsch, Detlev Rasch, Andreas Dietzel, Janina Bahnemann, Ulrich Krühne, Andreas Liese, Rainer Krull TU Braunschweig, Germany
12:00 – 12:20	<i>Optimized Spatial Configuration of Heterogeneous Biocatalysts intensifies flow</i> Javier Santiago-Arcos , Susana Velasco-Lozano, Eleftheria Diamanti, Ana I. BenítezMateos, Daniel A. Grajales, Francesca Paradisi, Fernando López-Gallego CIC biomaGUNE, Spain
12:20 – 12:40	<i>Enzymatic Acetophenone Reduction in Deep Eutectic Solvent: Transitioning from Batch to Continuous System</i> Mia Radović , Tadej Menegatti, Borut Šketa, Marko Božinović, Marina Cvjetko Bubalo, Igor Plazl, Polona Žnidaršič-Plazl University of Zagreb, Croatia

12:40 – 13:00	<i>Polymerization of apigenin catalysed by horseradish peroxidase in a microreactor</i> Anita Šalić , Ana Boltek, Bruno Zelić Dunja Šamec University of Zagreb, Croatia
13:00 – 14:30	Lunch
Session	CELLS WITHIN MICRODEVICES
Chairs	Kersten Rabe , Karlsruhe Institute of Technology, Germany Bruno Bühler , Helmholtz-Centre for Environmental Research, Leipzig, Germany
14:30 – 15:00	Keynote lecture <i>Engineering microdevices to recapitulate complex diseases using induced pluripotent stem cells</i> Ozlem Yesil-Celiktas , Ege University, Turkey
15:00 – 15:20	<i>Automation of a capillary-wave microreactor for conducting viability on mammalian cells</i> Ilka Knoke , Kevin Viebrock, Detlev Rasch, Andreas Dietzel, Rainer Krull TU Braunschweig, Germany
15:20 – 15:40	<i>Probing bacteria-phage interactions at the single cell level using droplet microfluidics</i> Anuj Tiwari, Nela Nikolica, Robyn Manley, Vasileios Anagnostidis, Fabrice Gielen University of Exeter, UK
15:40 – 16:00	<i>Microfluidic approaches for plant cell technology</i> Jialan Cao , Paulina Roza Marczakiewicz-Perera, G. Alexander Groß, Ralf Welsch, Oleksandr Dovzhenko, Klaus Palme, Traud Winkelmann and J. Michael Köhler Technische Universität Ilmenau, Germany
16:00 – 16:30	Coffee break
16:30 – 16:50	<i>Microfluidic cultivation and mechanical testing of fungal hyphae enabled by two photon polymerization</i> Steffen Brinkmann , Arno Kwade, Ingo Kampen, Andreas Dietzel Technische Universität Ilmenau; Germany
16:50 – 17:10	<i>Characterization of different biocatalyst formats for BVMO-catalyzed cyclohexanone oxidation</i> Bruno Bühler , Lisa Bretschneider, Ingeborg Heuschkel, Afaq Ahmed, Katja Bühler, Rohan Karande Helmholtz-Centre for Environmental Research-UFZ, Germany
17:10 – 17:30	<i>Optimization of continuous L-malic acid production in a microreactor through mathematical modeling</i> Tadej Menegatti , Igor Plazl, Polona Žnidaršič Plazl University of Ljubljana, Slovenia
Session	Poster spotlights
Chair	Michal Příbyl , University of Chemistry and Technology Prague, Czech Republic
17:30 – 17:35	<i>Diamin-alkyl derivative functionalized Immobead T2-150 as enzyme carrier for biocatalysis in continuous flow microfluidic system</i> Matild Pap , Csaba Paizs, Gabriel Katona Babeş-Bolyai University of Cluj-Napoca, Romania
17:35 – 17:40	<i>Enhanced Enzyme Immobilization in Agarose-based Hydrogels</i> Martin Peng , Christof M. Niemeyer, Kersten S. Rabe, Karlsruhe Institute of Technology, Germany
17:40 – 17:45	<i>Microfluidic devices for scaling-down biocatalysis and enzyme stability studies</i> Maria Rodriguez-Torres , Elif Erdem, Ulrich Krühne and John M. Woodley Technical University of Denmark, Denmark



IMPLEMENTATION OF
MICROREACTOR TECHNOLOGY
IN BIOTECHNOLOGY

7TH INTERNATIONAL
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17:45 – 17:50	<i>Novel magnetic nanoparticle-based flow reactors for biocatalytic production of enantiopure alcohols and amines</i> Fausto Macgyver Wanderley Gouveia Silva , Ali Obaid Omarah, József Szemes, László Tuba, Orsolya Takács, Ágnes Malta-Lakó, Evelin Santa-Bell, Akan Mustashev, Naran Bataa, Balázs Decsi, Diána Balogh-Weiser, László Poppe Budapest University of Technology and Economics, Hungary
17:50 – 17:55	<i>Application of cross-linked enzyme crystals of halohydrin dehalogenase HheG D114C in microfluidics</i> Lina Ahlborn , Lanting Xiang, Iordania Constantinou, Anett Schallmeyer TU Braunschweig, Germany
17:55 – 18:00	<i>Microfluidics-based generation of crosslinked horseradish peroxidase nanoaggregates and pallidol synthesis from resveratrol</i> Marko Božinović , Francesca Annunziata, Sabrina Dallavalle, Polona Žnidaršič Plazl University of Ljubljana, Slovenia
18:00 – 20:00	Poster session

Tuesday, 21st May 2024

9:00 – 9:55	Plenary talk <i>Shining Light on microreactors: Exploring the Power of Optical Sensing</i> Torsten Mayr , Graz University of Technology, Austria Chair: Takehiko Kitamori , The University of Tokyo, Japan
Session	ANALYTICAL AND MEDICAL MICRODEVICES
Chairs	Fan-Gang Tseng , National Tsing Hua University, Taiwan Torsten Mayr , Graz University of Technology, Austria
10:00 – 10:30	Keynote lecture <i>HD-SACA System for Single CTCs/CTM Rapid Diagnosis/Prognosis and Tumor-organelle-on-a-Chip Drug Screening for AI-Precision Medicine</i> Fan-Gang Tseng , National Tsing Hua University, Taiwan
10:30 – 10:50	<i>Glucose and lactate optical biosensors for microfluidic cell culture monitoring</i> Iga Malicka , Stefanie Fuchs, Madalena Cipriano, Christiane Luley, Bernd Nidetzky, Peter Loskill, Torsten Mayr Graz University of Technology, Austria
10:50 – 11:20	Coffee break
11:20 – 11:40	<i>Development of an automated platform for the optimization of microfluidic reactors through multi-reactor integration and online (chip-)LC/MS-detection</i> Sanjay Lama , Hannes Westphal, Simon Schmidt, Rico Warias, Tanja Gulder, Detlev Belder University of Leipzig, Germany
11:40 – 12:00	<i>Towards rapid, high-throughput and cost-effective evaluation of viral vector efficacy</i> Daria Farcas , Charles Moore-Kelly, R. André Raposo, Marco Marques, Nicolas Szita University College London, UK
12:00 – 12:20	<i>A Novel Therapeutic Method for Eliminating Amyloid-β in Alzheimer's Disease: Utilizing the iCore Blood Processing Platform</i> Alireza Asgharpour Masouleh, Georgy Koromyslov, Jaturavit Pantakitcharoenkul, Jad George Touma, Isabella R Estrada, Matthew Coblyn, Goran Jovanovic Oregon State University, USA
12:20 – 12:40	<i>Microfluidic PAT for CAR T Cell Therapy Manufacturing</i> Aleksandra Nikoniuk , Michael Thomas, Koki Lilova, Nicolas Szita University College London, UK

12:40 – 13:00	<i>Flow chemistry monitoring with in-situ React-IR 702L and React-Raman 802L systems</i> Kimmo Leppänen , Keith Racman Mettler Toledo
13:00 – 14:00	Lunch
14:00 – 15:15	Free time
15:15 – 19:45	Excursion
20:00	Gala dinner

Wednesday, 22nd May 2024

9:00 – 9:55	Plenary talk <i>Lessons learned – Using capillary biofilm reactors in biotechnology</i> Katja Bühler , Rohan Karande, Helmholtz- Center for Environmental Research – UFZ, Germany Chair: Andreas Bommarius , Georgia Institute of Technology, USA
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Session BIOPROCESS INTENSIFICATION AND INTEGRATION

Chairs	Goran N. Jovanović , Oregon State University, USA Igor Plazl , University of Ljubljana, Slovenia
10:00 – 10:30	Keynote lecture <i>Self-Assembling Biocatalytic Materials and Additive Manufacturing for Flow Biocatalysis</i> Kersten S. Rabe , Karlsruhe Institute of Technology, Germany
10:30 – 10:50	<i>Bioprocess Microfluidics 2.0: Towards Standardisation for Bioprocess Microfluidics Applications</i> Nicolas Szita, Marco P.C. Marques, Frank Baganz University College London, UK
10:50 – 11:20	Coffee break
11:20 – 11:40	<i>Design and fabrication of a microfluidic device for in-line crosslinked enzyme aggregates purification</i> Borut Šketa , Ebrahim Taiedi Nejad, Andreas Dietzel, Polona Žnidaršič Plazl University of Ljubljana, Slovenia
11:40 – 12:00	<i>Lipase catalyzed synthesis of enantiomers and their continuous separation in an electric field</i> Michal Přibyl , Lukáš Sauer, Anna Kovářová, Zdeněk Slouka University of Chemistry and Technology, Czech Republic
12:00 – 12:20	<i>Advanced methods for continuous chiral separation in modular milli-fluidic systems</i> Lukáš Sauer , Adam Sklenář, Petr Šmejkal, Michal Přibyl University of Chemistry and Technology, Czech Republic
12:20 – 12:40	<i>Modeling and kinetic parameter estimation of glucose dehydrogenase-catalyzed glucose oxidation</i> Ana Jurinjak Tušek , Karla Čulo, Anita Šalić, Bruno Zelić University of Zagreb, Croatia
12:40 – 13:10	Closing keynote lecture <i>Large-scale integrated microfluidic systems for chemical synthesis</i> Chih-Chen Chen , Kyojiro Morikawa, Takehiko Kitamori, National Tsing Hua University, Taiwan
13:10 – 13:30	Closing ceremony