IMPLEMENTATION OF MICROREACTOR TECHNOLOGY IN BIOTECHNOLOGY

8TH INTERNATIONAL CONFERENCE 14-17 JUNE·2026 BLED • SLOVENIA

CONFERENCE PROGRAMME

Sunday, 14th June 2026

16:30 – 18:30 Registration

18:30 – 18:45 Opening ceremony

18:45 – 19:45 **Opening lecture**
Sustainability in flow biocatalysis, can we do better?
Francesca Paradisi, University of Bern, Switzerland

Chairs **Polona Žnidaršič-Plazl**, University of Ljubljana, Slovenia
Bruno Zelić, University of Zagreb, Croatia

20:00 Welcome party

Monday, 15th June 2026

8:00 – 9:00 Registration

9:00 – 9:55 **Plenary talk**
Microfluidic platforms: From enzyme discovery and engineering to translational biomedical research
Zbynek Prokop, Masaryk University, Czech Republic

Chair **Roland Wohlgemuth,** Łódź University of Technology, Poland

Session ENZYMATIC MICROREACTORS

Chairs **Francesca Paradisi**, University of Bern, Switzerland
Heidrun Gruber-Woelfler, Graz University of Technology, Austria

10:00 – 10:30 **Keynote lecture**
Nanofluidic reactor with enzyme immobilization on glass nanochannels
Kyojiro Morikawa, National Tsing Hua University, Taiwan

10:30 – 10:50 *Continuous biocatalysis in a pressurized falling-film microreactor with immobilized crosslinked enzyme aggregates*
Žiga Gerdina, Borut Šketa, Gregor Marolt, Ana Roba, Marko Božinović, Polona Žnidaršič-Plazl
University of Ljubljana, Slovenia

10:50 – 11:20 Coffee break

11:20 – 11:40 *Developing continuous biocatalytic process for amide bond synthesis*
Tadej Menegatti, Žiga Gerdina, Tomaž Modic, Patrik Hlebanja, András Kotschy, Gábor Tasnádi, Polona Žnidaršič-Plazl
University of Ljubljana, Slovenia; Servier Research Institute of Medicinal Chemistry, Hungary

11:40 – 12:00 *3D-printed carriers for screening and characterization of immobilized LbADH*
Alina J. Tauriainen, Imre Aka, Julian Handke, Stephan Lütz, Norbert Kockmann,
Technical University Dortmund, Germany

12:00 – 12:20 *Integrated biocatalytic valorization of resveratrol with in situ enzymatic H_2O_2 generation*
Marko Božinović, Sebastijan Peljhan, Polona Žnidaršič-Plazl
University of Ljubljana, Slovenia; Sartorius BIA Separations d.o.o., Slovenia

12:20 – 12:40 *Bioinformatics-guided immobilization of a peptide ligase for continuous flow chemoenzymatic synthesis of semaglutide*
Cristina Lía Fernández Regueiro, Marco Macis, Claudia Arnofi, Ana Toplak, Walter Cabri, Francesca Paradisi, Antonio Ricci, David Roura Padrosa
inSEIT, Switzerland; Fresenius Kabi, R&D, Italy; University of Bern, Switzerland

12:40 – 13:00 *Development of continuous hydro- and deuterodecarboxylation of tyrosine with various tyrosine decarboxylases*
Patrik Hlebanja, Tadej Menegatti, Ana Obaha, Aljaž Gaber, Ross D. Jansen van Vuuren, Polona Žnidaršič-Plazl
University of Ljubljana, Slovenia

13:00 – 14:00 Lunch

14:00 – 15:00 **Poster session**

15:00 – 15:30 Coffee break

Session CELLS WITHIN MICRODEVICES

Chairs **Janina Bahnemann**, University of Augsburg, Germany
Alexander Grünberger, Karlsruhe Institute of Technology, Germany

15:30 – 16:00 **Keynote lecture**
Towards small scale: additive manufacturing for the use of microfluidics and biosensors in biotechnology
Janina Bahnemann, University of Augsburg, Germany

16:00 – 16:20 *Single-cell bioreactors for bioprocess development: Lots to do, little to lose!*
Alexander Grünberger
Karlsruhe Institute of Technology, Germany

16:20 – 16:40 *MiCATS: a versatile software tool for reactive microfluidics experiments with microbes*
Svenja Schmelzer, Judith Wegmann, Rebecca Schira, Borys Yermakov, Alexander Grünberger, Ilka Bischofs
Heidelberg University, Germany; Max-Planck-Institute, Germany; Karlsruhe Institute of Technology, Germany

16:40 – 17:00 *DexMa microgel system for dynamic glucose-controlled single-cell analysis*
Michelle Bund, Marc-Cevin Meyer, Matthias Pesch, Johannes Seiffrath, Aileen Krüger, Seung-Hyun Paik, Tobias Horbach, Julia Frunzke, Thomas Drepper, Dietrich Kohlheyer
Jülich Research Centre, Germany; Heinrich Heine University, Germany

17:00 – 17:20 *A tube-based droplet microfluidic platform for controlled cultivation and hormonal screening of plant tissue cuboids*
Paulina Marczakiewicz-Perera, Alexander Groß, Dietmar Link, J. Michael Köhler, Jialan Cao
Technical University Ilmenau, Germany; University of Applied Sciences Osnabrück, Germany

17:20 – 17:40 *In-line monitoring of oxygen, glucose and lactate in organ-on-chips with integrated optical sensors*
I. Malicka, S. Fuchs, V. Rieger, M. Cipriano, T. Brandtner, P. Loskill, **Torsten Mayr**
Graz University of Technology, Austria; PyroScience, Austria; Eberhard Karls University, Germany

Tuesday, 16th June 2026

9:00 – 9:55 **Plenary talk**
Role for biomimetic membranes in medical devices
Donald Martin, University Grenoble Alpes, France

Chair: **Takehiko Kitamori**, National Tsing Hua University, Taiwan

Session **ANALYTICAL AND MEDICAL MICRODEVICES**
Chairs **Donald Martin**, University Grenoble Alpes, France
Torsten Mayr, Graz University of Technology, Austria

10:00 – 10:30 **Keynote lecture**
Reverse engineering human immuno-metabolism using microphysiological systems
Marissa McGilvrey, Farhan Siddiqui, Shereen Chew, Shicheng Ye, Ronald Bronson, Matjaz Dogsa, Luther Raechal, Matjaz Dogsa, **Martin Trapecar**
Johns Hopkins University, School of Medicine, USA; RSEN s.p. Slovenia; Johns Hopkins All Children's Hospital, USA

10:30 – 10:50 *Aβ42 aggregation and enzymatic degradation: a modeling framework toward Alzheimer's disease therapeutic strategies*
Benjamin Liu-May, Alireza Asgharpour Masouleh, Matthew Coblyn, **Goran Jovanovic**
Oregon State University, USA

10:50 – 11:20 Coffee break

11:20 – 11:40 *Impedance characterization of porcine oocytes during microfluidic constriction deformation*
Osama Alalul, Jintian Liu, Markus Böl, Ala'aldeen Al-Halhouli, Andreas Dietzel
Technical University Braunschweig, Germany; German Jordanian University, Jordan; Technical University Braunschweig, Germany

11:40 – 12:00 *Development of an ion channel switch biosensor for tumor biomarkers detection based on hydrazide-glycosylation chemistry*
Beatrice Barletti, Nicoló Paracini, Giovanna Fragneto, Jean-Pierre Alcaraz, Isabelle Vilgrain, Bruce Cornell, Marco Maccarini, Donald K. Martin
University Grenoble Alpes, France; European Spallation Source, Sweden; Surgical Diagnostics Pty Ltd, Australia

12:00 – 12:20 *A modular microfluidic IR flow-cell for inline and in-situ reaction monitoring*
Sanjay Lama, Erika Verbena, Hannes Westphal, Julius Schwieger, Ben Ungermann, Klaus Welters, Rico Warias, Detlev Belder
Leipzig University, Germany

12:20 – 12:45 **Poster pitch session**
Chair **Michal Přibyl**, Prague University of Chemistry and Technology, Czech Republic

12:20 – 12:25 *Parallel fabrication of tunable blood clot analogues in hourglass-profiled PDMS Microchannels*
Chihchen Chen, Chun-Hsin Hsu, To-Wen Chen, Wei-Jen Soong
National Tsing Hua University, Taiwan

12:25 – 12:30 *High throughput, single cell optogenetic profiling and multiphysics modelling approach to elucidating spatial effects on protein yield in industrial bioreactors*
Yuhang Xie, Jean-Baptiste Lugagne
University of Oxford, United Kingdom

12:30 – 12:35 *A Microfluidic Lab-on-a-Chip Device with Integrated Surface Acoustic Wave Mixing for Sensitivity Enhancement in Porous Silicon Biosensors*
Jonathan Nyenhuis, **Christopher Heuer**, Josef Zürn, Alexandros Lazanas, Beatriz Pietro-Simon, Christoph Westerhausen, Janina Bahnemann
University of Augsburg, Germany; Institute of Chemical Research of Catalonia, Spain

12:35 – 12:40 *Model-based optimisation of a capillary force-driven microstructured distillation device*
Martina Potočnik, Rok Ambrožič
University of Ljubljana, Slovenia

12:40 – 12:45 *Autonomous microfluidic toxicity-sensing unit for real-time control of a photocatalytic water treatment reactor*
Andraž Šuligoj, Yuejun Yu, Zach Shidlovsky, Dina Shachar, Sima Yaron, Yaron Paz, **Urška Lavrenčič Štangar**
University of Ljubljana, Slovenia; Technion – Israel Institute of Technology, Israel

13:00 – 14:00 Lunch

14:00 – 15:00 Free time

15:00 – 22:00 Excursion with conference dinner

Wednesday, 17th June 2026

9:00 – 9:55 **Plenary talk**
The use of water as reaction medium for flow chemistry applications
C. Oliver Kappe, University of Graz, Austria

Chair **Pablo Domínguez de María**, Sustainable Momentum, Spain

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**
From upstream to downstream: A holistic view on CO_2 emissions in (intensified) bioprocesses
Pablo Domínguez de María, Sustainable Momentum, Spain

10:30 – 10:50 *Microfluidic platforms for photocatalytic transformations toward biological applications*
Rok Ambrožič, Igor Plazl, Keiran Mc Carogher, Simon Kuhn
University of Ljubljana, Slovenia; KU Leuven, Belgium

10:50 – 11:20 Coffee break

11:20 – 11:40 *Modular microfluidic system for synthesis and extraction of (R)-1-phenylethanol*
Michal Přibyl, Lukáš Sauer
Prague University of Chemistry and Technology, Czech Republic

11:40 – 12:00 Towards process integration in biotechnology: microfluidic pervaporation as a platform for *selective volatile organic compound removal*
Helena Potočnik, Igor Plazl, Polona Žnidaršič-Plazl, Rok Ambrožič
University of Ljubljana, Slovenia

12:00 – 12:20 *Integrating chemo-, photo-, and biocatalysis in multistep flow systems*
Heidrun Gruber-Woelfler, Alessia Valotta, Robert Kourist, Tamara Reiter, Wolfgang Kroutil
Graz University of Technology, Austria; University of Graz, Austria

12:20 – 12:40 Closing ceremony