

PROGRAMME

23 – 25 May 2022 · Atrium-Hotel · Mainz

**Himmelfahrtstagung on
Bioprocess Engineering 2022 –
Future Bioprocesses for a
Sustainable Industry**

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**FROM GENES
TO PRODUCTS**

PROGRAMME AT A GLANCE

Sunday, 22 May 2022

	Pre-Workshop
19:00	Vorabendtreffen

Monday, 23 May 2022

8:20	Welcome Address
8:30	KEYNOTE LECTURE M. Japs
	Bioprocess solutions to achieve sustainable development goals
9:15	F. Mittermeier
9:45	A. Langsdorf
10:15	Coffee Break
10:45	W. Blümke
11:15	T. Müller
11:45	Coffee Break
12:15	Promotionspreis
12:45	Lunch Break
	Approaches for enabling a circular economy
13:34	N. Wagner
14:15	A. Becker
14:45	P. Demling
15:15	J. Klager
15:45	Coffee Break
	Novel bioprocesses as a driver for bioeconomy
16:15	A. Schmidt
16:45	F. Buthmann
17:30	General meeting of the working group Bioprocess Engineering (members only)
18:00	Poster Party
20:00	End of Day 1

PROGRAMME AT A GLANCE

Tuesday, 24 May 2022

8:30	KEYNOTE LECTURE M. Jenzsch
	Sustainability in biopharma processes
9:15	D. Eisenkrätzer
9:45	M. Kuschel
10:15	Coffee Break
	Smart bioreactor and Downstream processing concepts
10:45	A. Oudshoorn
11:15	M. Tesanovic
11:45	L. Helleckes
12:15	Lunch Break
13:15	D. Vorländer
13:45	S. Täuber
14:15	L. Kaspersetz
14:45	Coffee Break
15:15	A. Moser
15:45 16:15	D. Eixenberger
16:30	Board Meeting (16:30 – 17:15)
18:15	Departure for evening program
19:00	Conference Dinner on the boat/boat departs

Wednesday, 25 May 2022

8:30	POSTER AWARD 3 best posters
	Open topic
9:00	A. Wahl
9:20	J. Müller
9:40	A. Schmeckeber
10:00	Coffee Break
10:20	C. Dinter
10:40	F. Eilts
11:00	H. Helgers
11:20	N. Erdmann
11:40	Closing (11:40-12:00)

PROGRAMME

Monday, 23 May 2022

Room: ACC II (D1 - D3)

08:20 **WELCOME ADDRESS**

Chair: W. Blümke, Evonik Operations GmbH, Hanau/D; R. Takors, Universität Stuttgart/D

08:30 **KEYNOTE LECTURE**

tba

M. Japs¹; ¹ Genomatica, Inc., /USA**Bioprocess solutions to achieve sustainable development goals**

Chair:

09:15 **Co-cultivation of filamentous fungi for the production of adapted enzyme mixtures for the hydrolysis of wheat bran**F. Mittermeier¹; K. Xypolia Vasila¹; N. Hafner¹; D. Weuster-Botz¹; ¹ Technical University of Munich, Garching b. München/D09:45 **Green waste as a growth medium and source of peroxidases**A. Langsdorf¹; R. Ulber²; D. Holtmann¹; ¹ University of Applied Sciences Mittelhessen, Giessen/D; ² University of Kaiserslautern, Kaiserslautern/D10:15 **Coffee Break**10:45 **The Chances for Biotech Industry in Fighting the Climate Change Challenge**W. Blümke¹; ¹ Evonik Operations GmbH, Hanau/D11:15 **Introduction of mutual interdependencies as a relational framework of synthetic co-cultures**T. Müller¹; S. Schick¹; J. Beck¹; G. Sprenger¹; R. Takors¹; ¹ University of Stuttgart, Stuttgart/D11:45 **Coffee Break**12:15 **DECHEMA Industrial Bioprocess Award**

Chair:

12:45 **Lunch Break**

PROGRAMME

Monday, 23 May 2022

Room: ACC II (D1 - D3)

Approaches for enabling a circular economy

Chair:

13:45 **Engineering E. coli for the carbon-conserving conversion of ethylene glycol to acetyl-CoA and derived products**N. Wagner¹; F. Bade¹; K. Rabe¹; T. Walther¹; ¹ Technische Universität Dresden, Dresden/D14:15 **Re-valorization of Electronic Waste - Moss as a Biosorber for Gold Recovery?**C. Karampatzis¹; B. Böhm¹; K. Castiglione¹; E. Gabor²; A. Becker¹; ¹ Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen/D; ² BRAIN Biotech AG, Zwingenberg/D14:45 **Establishing a circular phosphate economy – Polyphosphate production in Saccharomyces cerevisiae**P. Demling¹; J. Fees¹; A. Deitert¹; L. Blank¹; ¹ RWTH Aachen University, Aachen/D15:15 **The usage of model-based techniques to handle complex and variable multi-substrate streams to guarantee stable and sustainable bioconversion processes**J. Kager¹; P. Sinner²; C. Herwig²; ¹ Competence Center CHASE GmbH, Vienna/A; ² Technische Universität Wien, Vienna/A15:45 **Coffee Break****Novel bioprocesses as a driver for bioeconomy**

Chair:

16:15 **Digital Twins for Continuous mRNA Production**A. Schmidt¹; H. Helgers¹; A. Hengelbrock¹; J. Strube¹; ¹ Clausthal University of Technology/ Institute for Separation and Process Technology, Clausthal-Zellerfeld/D16:45 **Centrifugal Partition Chromatography - Optimization and Experimental Validation of long-term Operability**F. Buthmann¹; J. Koop¹; G. Schembecker¹; ¹ TU Dortmund, Dortmund/D17:30 **General meeting of the working group Bioprocess Engineering**
(members only, 17:30 – 18:00)18:00 **POSTER PARTY** (18:00 – 20:00)

PROGRAMME

Tuesday, 24 May 2022

Room: ACC II (D1 - D3)

Chair:

- 08:30 **KEYNOTE LECTURE**
Steering towards a sustainable future of bioprocessing – How to embrace our environmental and social responsibility
 M. Jenzsch¹; ¹ Roche Diagnostics GmbH, Penzberg/D

Sustainability in biopharma processes

Chair:

- 09:15 **Single Use Equipment or Re-usable Equipment for Bioprocessing – Decision Drivers and Consequences for Sustainability**
 D. Eisenkrätzer¹; ¹ Roche Diagnostics GmbH, Penzberg/D

- 09:45 **From equipment characterization in biopharma towards robust cell culture performance – the importance of hydrodynamic stress**
 M. Kuschel¹; O. Strom²; M. Soos²; E. Hasenfus¹; T. Wucherpfennig¹; ¹ Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach an der Riß/D; ² University of Chemistry and Technology Prague, Prague/CZ

10:15 Coffee Break

Smart bioreactor and downstream processing concepts

Chair:

- 10:45 **Be FAST: How state-of-the-art bioreactor technology FAST enables cost-effective bioprocessing at scale**
 A. Oudshoorn¹; A. Bohnenkamp¹; ¹ DAB Bio, Delft/NL

- 11:15 **Digitalization and automation of the innovative Rotor-Stator Magnetic Separator on pilot-scale**
 M. Tesanovic¹; ¹ TU München, Garching b. München/D

- 11:45 **From Frozen Working Cell Bank to Final Product Assay - Closing the Loop of Autonomous High-Throughput Strain Characterization**
 L. Helleckes¹; D. Puchta¹; H. Czech¹; C. Müller¹; H. Morschett¹; W. Wiechert¹; M. Oldiges¹; ¹ Forschungszentrum Jülich GmbH, Jülich/D

12:15 Lunch Break

PROGRAMME

Tuesday, 24 May 2022

Room: ACC II (D1 - D3)

Smart bioreactor and downstream processing concepts

Chair:

- 13:15 **In-vitro cultivation of gut microbiota – an innovative peristaltic mixed tubular bioreactor for medical research applications**
 D. Vorländer¹; G. Schultz¹; D. Rasch¹; K. Dohnt¹; ¹ Technische Universität Braunschweig, Braunschweig/D

- 13:45 **Dynamic microfluidic single-cell cultivation: From concept to application for the cultivation of *Corynebacterium glutamicum***
 S. Täuber¹; L. Blöbaum¹; A. Grünberger¹; ¹ Multiscale Bioengineering, Bielefeld University, Bielefeld/D

- 14:15 **Across scales: An integrated robotic cultivation platform for accelerated bioprocess development**
 L. Kaspersetz¹; J. Aizpuru¹; N. Krausch¹; K. Fabian¹; J. Kim¹; S. M.-Therese¹; M. Cruz Bournazou¹; P. Neubauer¹; ¹ Technische Universität Berlin/D

14:45 Coffee Break

Smart bioreactor and downstream processing concepts

Chair:

- 15:15 **Investigating the effects of bioreactor inhomogeneities on cell growth and productivity using a combined physical and mathematical model approach**
 A. Moser¹; D. Maier¹; R. Pörtner²; V. Hass¹; ¹ Furtwangen University, Villingen-Schwenningen/D; ² Technical University Hamburg, Hamburg/D

- 15:45 **Smart Reactors - Stimuli-responsive Polymer Brushes as Immobilization Matrix for Autonomous Reaction Control**
 D. Eixenberger¹; A. Kumar¹; A. Dawood¹; A. Liese¹; ¹ Hamburg University of Technology - Institute of Technical Biocatalysis, Hamburg/D

16:30 Board Meeting (16:30 – 17:30)

18:30 Departure for the evening programme

19:00 Conference Dinner on the boat (19:00 – 23:00 / 0:00)

PROGRAMME

Wednesday, 25 May 2022

Room: ACC II (D1 - D3)

- 08:30 **POSTER AWARD**
Chair: S. Freyer, BASF SE, Ludwigshafen
- Open topic**
- Chair:
- 09:00 **Predicting metabolic adaptation under dynamic substrate conditions using a resource dependent kinetic model: A case study using *Saccharomyces cerevisiae***
K. Verhagen¹; S. Eerden¹; B. Sikkema¹; S. Wahl²; ¹ Delft University of Technology, Delft/NL; ² FAU Erlangen-Nuernberg, Erlangen/D
- 09:20 **From single-gene translation to global elongation assessment – a dynamic translational model for *Escherichia coli***
J. Müller¹; M. Siemann-Herzberg¹; R. Takors¹; ¹ University of Stuttgart - Institute of Biochemical Engineering, Stuttgart/D
- 09:40 **Productive Biofilms on microstructured surfaces**
A. Schmeckebier¹; R. Ulber¹; ¹ TU Kaiserslautern/D
- 10:00 **Coffee Break**
- Open topic**
- Chair:
- 10:20 **Minimal-invasive Online Monitoring of Dissolved Oxygen Tension, Viscosity, Scattered Light and pH in Shake Flask Cultivations**
C. Dinter¹; J. Büchs¹; D. Flitsch²; M. Mertens²; ¹ RWTH Aachen / AVT - Bioverfahrenstechnik, Aachen/D; ² Pyro Science GmbH, Aachen/D
- 10:40 **The role of target aggregation throughout the steric exclusion chromatography**
F. Eilts¹; K. Lothert¹; M. Wolff¹; ¹ University of Applied Sciences Mittelhessen (THM), Giessen/D
- 11:00 **Towards Autonomous Process Control – Digital Twin for Antibody and VLP Manufacturing Using a Dynamic Metabolic Model**
H. Helgers¹; A. Schmidt¹; A. Hengelbrock¹; J. Strube¹; ¹ Clausthal University of Technology/ Institute for Separation and Process Technology, Clausthal-Zellerfeld/D
- 11:20 **Investigation of the efficiency of microbiologically induced calcium carbonate precipitation**
N. Erdmann¹; M. Lorenz¹; K. de Payrebrune¹; D. Strieth¹; ¹ TU Kaiserslautern/D
- 11:40 **Closing (11:40 – 12:00)**
Chair: W. Blümke, Evonik Operations GmbH, Hanau/D