

**PROGRAMME**

15 – 17 May 2023 · Weimar · Germany

# Himmelfahrtstagung on Bioprocess Engineering 2023 –

## Novel production routes and processes for bio-pharmaceuticals and industrial bioeconomy

[www.dechema.de/BioPro23](http://www.dechema.de/BioPro23)



© Thomas Müller, Weimar GmbH



**FROM GENES  
TO PRODUCTS**

## PROGRAMME

## Monday, 15 May 2023

## 08:20 WELCOME ADDRESS

Chair: R. Takors<sup>1</sup>; <sup>1</sup> Universität Stuttgart, Stuttgart/D

## 08:30 KEYNOTE LECTURE

**Next generation bioproducts: Accelerating the path from innovation to commercialization**  
H. Noorman<sup>1</sup>; C. Haringa<sup>1</sup>; <sup>1</sup> Delft University of Technology, Delft/NL

## Targeting next generation products

Chair: A. Liese<sup>1</sup>; <sup>1</sup> Technische Universität Hamburg (TUHH), Hamburg/D

## 09:15 Automated strain screening and process development for heterologous production of the bacteriocin garvicin Q

V. Steier<sup>1</sup>; L. Prigolovkin<sup>1</sup>; A. Stefanowski<sup>1</sup>; C. Desiderato<sup>2</sup>; B. Eikmanns<sup>2</sup>; C. Riedel<sup>2</sup>; W. Wiechert<sup>1</sup>; M. Oldiges<sup>1</sup>; <sup>1</sup> Forschungszentrum Jülich, Jülich/D; <sup>2</sup> Ulm University, Ulm/D

## 09:45 Coffee Break

## Targeting next generation products

Chair: A. Liese<sup>1</sup>; <sup>1</sup> Technische Universität Hamburg (TUHH), Hamburg/D

## 10:15 Intensified fermentation of 2-phenyl ethanol by FAST: Maintaining fermentative productivity by process technology innovation

A. Brewster<sup>1</sup>; A. Oudshoorn<sup>1</sup>; E. van den Berg<sup>1</sup>; M. Luttkik<sup>2</sup>; J. Daran<sup>2</sup>; <sup>1</sup> DAB.bio, Delft/NL; <sup>2</sup> Delft University of Technology, Delft/NL

## 10:45 Project PhANG - Phosphorus Utilization from Plant Based Materials

N. Widderich<sup>1</sup>; N. Mayer<sup>2</sup>; M. Kaltschmitt<sup>2</sup>; P. Bubenheim<sup>1</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology - Institute of Technical Biocatalysis, Hamburg/D; <sup>2</sup> Hamburg University of Technology - Institute of Environmental Technology and Energy Economics, Hamburg/D

## 11:15 Bio-energy conversion with carbon capture and utilization (BECCU)

L. Blank<sup>1</sup>; H. Mengers<sup>1</sup>; N. Guntermann<sup>1</sup>; G. Franciò<sup>1</sup>; W. Leitner<sup>2</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D; <sup>2</sup> RWTH Aachen University, Max Planck Institute for Chemical Energy Conversion, Aachen, Mülheim/D

## 11:45 Lunch Break

## PROGRAMME

## Monday, 15 May 2023

## New ways for producing biopharmaceuticals

Chair: K. Castiglione<sup>1</sup>; <sup>1</sup> Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen/D

## 13:00 Bayer's vision of a cell therapy industrialization platform

K. Kaiser<sup>1</sup>; T. Bieringer<sup>2</sup>; M. Poggel<sup>2</sup>; <sup>1</sup> Bayer AG, Wuppertal/D; <sup>2</sup> Bayer AG, Leverkusen/D

## 13:30 Light Controlled Affinity Chromatography Enables Rapid Antibody Purification with Drastically Reduced Buffer Consumption

A. Reichert<sup>1</sup>; F. Rodewald<sup>1</sup>; C. Graf<sup>1</sup>; <sup>1</sup> Lumatix Biotech, Garching/D

## 14:00 Selective capture of Trastuzumab from cell culture by automated high-gradient magnetic separation

I. Zimmermann<sup>1</sup>; F. Eilts<sup>1</sup>; S. Berensmeier<sup>1</sup>; <sup>1</sup> Technical University of Munich, Garching/D

## 14:30 Coffee Break

## New ways for producing biopharmaceuticals

Chair: D. Eisenkrätzer<sup>1</sup>; <sup>1</sup> Roche Diagnostics GmbH, Penzberg/D

## 15:00 Development of a Microfluidic System for continuous transient Transfection of Mammalian Cells

M. Dehne<sup>1</sup>; A. Enders<sup>2</sup>; J. Bahnemann<sup>3</sup>; <sup>1</sup> University of Augsburg, Augsburg/D; <sup>2</sup> Leibniz University Hannover, Hannover/D; <sup>3</sup> University of Augsburg, Augsburg/D

## 15:30 Identification of putative inhibitors during erythroblast cultivation using metabolomics

J. Gallego-Murillo<sup>1</sup>; E. van den Akker<sup>2</sup>; M. von Lindern<sup>2</sup>; S. Wahl<sup>3</sup>; <sup>1</sup> Meatable, Delft/NL; <sup>2</sup> Sanquin Research and Landsteiner Laboratory, Amsterdam/NL; <sup>3</sup> FAU Erlangen-Nuernberg, Erlangen/D

## 16:00 Development of a modular computational framework tailored to high throughput mini-bioreactor systems

A. Kemmer<sup>1</sup>; N. Fischer<sup>1</sup>; L. Cai<sup>1</sup>; P. Neubauer<sup>1</sup>; M. Cruz Bournazou<sup>1</sup>; <sup>1</sup> Technische Universität Berlin, Berlin/D

## 16:30 General meeting of the working party Bioprocess Engineering (members only)

## 18:15-20:00 POSTER PARTY with Beer and Brezels

## EXHIBITION

Thanks to our exhibitors:



## PROGRAMME

## Tuesday, 16 May 2023

Chair: R. Ulber<sup>1</sup>; <sup>1</sup>RPTU Kaiserslautern-Landau, Kaiserslautern/D

08:30 **KEYNOTE LECTURE**  
**Strategies for a sustainable bioeconomy**  
 K. Reardon<sup>1</sup>; X. Huang<sup>1</sup>; D. Bartholet<sup>1</sup>; K. Baas<sup>1</sup>; <sup>1</sup> Colorado State University/USA

Valorizing alternative carbon sources

Chair: R. Ulber<sup>1</sup>; <sup>1</sup>RPTU Kaiserslautern-Landau, Kaiserslautern/D

09:15 **Acetate as a Platform for Sustainable Production of Oleochemicals**  
 B. Pflieger<sup>1</sup>; <sup>1</sup> University of Wisconsin-Madison, Madison/USA

09:45 **Coupling hydrodynamics and metabolic dynamics in syngas fermentation towards industrial reactor design**  
 L. Puiman<sup>1</sup>; E. Almeida Benalcázar<sup>1</sup>; H. Noorman<sup>2</sup>; C. Haringa<sup>1</sup>; <sup>1</sup> Delft University of Technology, Delft/NL; <sup>2</sup> Royal DSM, Delft/NL

10:15 Coffee Break

Valorizing alternative carbon sources

Chair: A. Grünberger<sup>1</sup>; <sup>1</sup>Universität Bielefeld, Bielefeld/D

10:45 **Upgrading acetic acid containing side-streams to value-added products: fungal L-malic acid production**  
 A. Kövilein<sup>1</sup>; C. Kubisch<sup>1</sup>; K. Ochsenreither<sup>2</sup>; <sup>1</sup> Karlsruhe Institute of Technology, Karlsruhe/D; <sup>2</sup> Technikum Laubholz GmbH, Göppingen /D

11:15 **Up- and downstream process development for producing 2,4-pyridinedicarboxylic acid from lignin for bio based plastics**  
 J. Notheisen<sup>1</sup>; H. Gómez-Álvarez<sup>2</sup>; G. Rashid<sup>3</sup>; J. Nogales<sup>2</sup>; E. Díaz<sup>2</sup>; T. Bugg<sup>3</sup>; R. Takors<sup>1</sup>; <sup>1</sup> University of Stuttgart, Stuttgart/D; <sup>2</sup> Spanish National Research Council, Madrid/E; <sup>3</sup> University of Warwick, Coventry/UK

11:45 **Optimizing microbial hydrolysis of biogenic residues in a plug-flow reactor**  
 T. Menzel<sup>1</sup>; P. Neubauer<sup>1</sup>; S. Junne<sup>2</sup>; <sup>1</sup> Technische Universität Berlin, Berlin/DK; <sup>2</sup> Aalborg University Esbjerg, Esbjerg/DK

12:15 Lunch Break

## PROGRAMME

## Tuesday, 16 May 2023

Chair: W. Blümke<sup>1</sup>; <sup>1</sup>Evonik Operations GmbH, Hanau/D

13:15 **DECHEMA Industrial Bioprocess Award**  
**Construction of robust *Escherichia coli* strains for large-scale production**  
 M. Ziegler<sup>1</sup>; <sup>1</sup> Institute of Biochemical Engineering, University of Stuttgart/D

Smart approaches for up- and downstream processing

Chair: M. Oldiges<sup>1</sup>; <sup>1</sup>Forschungszentrum Jülich GmbH, Jülich/D

13:45 **Precision fermentation - Using *Aspergillus niger* for the Production of an Animal derived Protein**  
 Y. Tiffert<sup>1</sup>; J. Herz<sup>1</sup>; I. Engel<sup>1</sup>; C. Naumer<sup>1</sup>; <sup>1</sup> BRAIN Biotech AG, Zwingenberg/D

14:15 **Microfluidic single-cell cultivation for mammalian bioprocesses: Tackling the question of cellular heterogeneity**  
 J. Schmitz<sup>1</sup>; B. Yermakov<sup>1</sup>; O. Hertel<sup>1</sup>; N. Romanova<sup>1</sup>; T. Noll<sup>1</sup>; A. Grünberger<sup>2</sup>; <sup>1</sup> Bielefeld University, Bielefeld/D; <sup>2</sup> Karlsruhe Institute of Technology, Karlsruhe/D

14:45 **Fed-batch and continuous production of PET degrading enzymes in *E. coli***  
 L. Fohler<sup>1</sup>; G. Striedner<sup>2</sup>; M. Cserjan<sup>2</sup>; <sup>1</sup>, Vienna/A; <sup>2</sup> University of Natural Resources and Life Sciences, Vienna, Vienna/A

15:15 Coffee Break

Smart approaches for up- and downstream processing

Chair: B. Blombach<sup>1</sup>; <sup>1</sup>Technical University of Munich, Straubing/D

15:45 ***Vibrio natriegens* – a new bioelectrochemical workhorse?**  
 A. Gemünde<sup>1</sup>; J. Gail<sup>1</sup>; D. Holtmann<sup>1</sup>; <sup>1</sup> Technische Hochschule Mittelhessen, Gießen/D

16:15 **CASPON technology – a platform process for non-platform proteins using *Escherichia coli***  
 C. Köppl<sup>1</sup>; M. Cserjan-Puschmann<sup>1</sup>; N. Lingg<sup>2</sup>; A. Fischer<sup>2</sup>; C. Kröß<sup>3</sup>; R. Schneider<sup>3</sup>; A. Jungbauer<sup>1</sup>; G. Striedner<sup>1</sup>; <sup>1</sup> Austrian Centre of Industrial Biotechnology, University of Natural Resources and Life Sciences (BOKU), Vienna/A; <sup>2</sup> Austrian Centre of Industrial Biotechnology, Vienna/A; <sup>3</sup> Austrian Centre of Industrial Biotechnology, University Innsbruck, Innsbruck/A

16:45 **A bioprocess for in situ recovery of methyl ketones**  
 C. Grütering<sup>1</sup>; T. Tiso<sup>1</sup>; M. Neumann<sup>1</sup>; C. Honecker<sup>1</sup>; A. Jupke<sup>1</sup>; S. Pischinger<sup>1</sup>; L. Blank<sup>1</sup>; <sup>1</sup> RWTH Aachen, Aachen/D

18:00 Guided tour through Weimar

19:30 **BBQ-PARTY**  
 Villa Haar

## PROGRAMME

Wednesday, 17 May 2023

Chair: S. Freyer<sup>1</sup>; <sup>1</sup> BASF SE, Ludwigshafen/D

09:00 POSTER AWARDS

Open Topic

Chair: W. Blümke<sup>1</sup>; <sup>1</sup> Evonik Operations GmbH, Hanau/D

09:30 **Online monitoring in small-scale bioreactors is a game changer in bioprocess development and in additional fields of application**  
J. Büchs<sup>1</sup>; <sup>1</sup> RWTH Aachen, Aachen/D

Chair: C. Bornhövd<sup>1</sup>; <sup>1</sup>Wacker Chemie AG, München/D

10:15 **Connectivity in the lab: How IoT technology and cloud-enabled digitalization can speed up R&D in industrial biotechnology**  
L. Bromig<sup>1</sup>; R. Zechlin<sup>2</sup>; D. Weuster-Botz<sup>3</sup>; <sup>1</sup> Technical University of Munich, Garching/D;  
<sup>2</sup> UniteLabs AG, Basel/CH; <sup>3</sup> Technische Universität München, Garching/D

10:35 **Continuous Centrifugal Extraction: Optimization of Hydrodynamics based on Computational Fluid Dynamics and Additive Manufacturing**  
S. Volpert<sup>1</sup>; L. Nordhausen<sup>1</sup>; R. Alfsmann<sup>1</sup>; G. Schembecker<sup>1</sup>; <sup>1</sup> TU Dortmund University, Dortmund/D

10:55 Coffee Break

Open Topic

Chair: G. Striedner<sup>1</sup>; <sup>1</sup>University of Natural Resources and Life Sciences, Vienna, Vienna/A

11:15 **Waste is not waste until we waste it – enzymatic recycling of PET bottles and fibers with engineered hydrolases**  
S. Fritzsche<sup>1</sup>; K. Castiglione<sup>1</sup>; <sup>1</sup> Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen/D

11:35 **Exposure of an Escherichia coli quadruple reporter strain to limitation zones in a two-compartment bioreactor with a coiled flow inverter for population heterogeneity studies**  
M. Hoang<sup>1</sup>; A. Heins<sup>1</sup>; <sup>1</sup> Technical University of Munich, Garching/D

11:55 **Label-free Detection of Microbial Growth on a Single-cell Level for Fast Antibiotic Susceptibility Testing**  
M. Graf<sup>1</sup>; A. Munser<sup>2</sup>; A. Sarkar<sup>1</sup>; C. Svensson<sup>1</sup>; M. Figge<sup>1</sup>; M. Agler-Rosenbaum<sup>1</sup>; <sup>1</sup> Leibniz Institute for Natural Product Research and Infection Biology – Hans-Knöll-Institute, Jena/D; <sup>2</sup> Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Jena/D

12:15 **Biotechnological approaches for science outreach - Cultivation of microalgae in photobioreactors and extraction of their natural dyes**  
L. Geuer<sup>1</sup>; N. Erdmann<sup>1</sup>; J. Kollmen<sup>1</sup>; S. Wallrath<sup>2</sup>; A. Engel<sup>2</sup>; B. Risch<sup>2</sup>; D. Strieth<sup>1</sup>; R. Ulber<sup>1</sup>;  
<sup>1</sup> RPTU Kaiserslautern-Landau, Kaiserslautern/D; <sup>2</sup> RPTU Kaiserslautern-Landau, Landau/D

12:35 Farewell &amp; Closing

## POSTER

P 01 **Tuning the population dynamics in a filamentous co-culture for the conversion of cellulose into valuable natural products**  
M. Finger<sup>1</sup>; A. Palacio-Barrera<sup>2</sup>; I. Schlembach<sup>2</sup>; M. Rosenbaum<sup>2</sup>; J. Büchs<sup>1</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D; <sup>2</sup> Leibniz Institute for Natural Product Research and Infection Biology, Jena/D

P 02 **Investigation into struvite precipitation: a commonly encountered problem during fermentations on chemically defined media**  
T. Steimann<sup>1</sup>; D. Wollborn<sup>1</sup>; R. Dinger<sup>1</sup>; J. Büchs<sup>1</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D

P 03 **CAFIPLA – An innovative, cost-effective, and sustainable pre-treatment concept for heterogeneous biowaste**  
C. Andreeßen<sup>1</sup>; E. Hegel<sup>1</sup>; T. Dietrich<sup>2</sup>; <sup>1</sup> DECHEMA e.V., Frankfurt am Main/D; <sup>2</sup> Fundación Tecnalia Research & Innovation, Miñano – Álava/E

P 05 **Producing enzymes for the removal of odorous substances in plants**  
P. Opendsteinen<sup>1</sup>; M. Knödler<sup>1</sup>; J. Buyel<sup>2</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D;  
<sup>2</sup> University of Natural Resources and Life Sciences, Vienna (BOKU), Vienna/A

P 06 **Extracellular recombinant peptide production in Escherichia coli**  
M. Gibisch<sup>1</sup>; M. Müller<sup>1</sup>; R. Hahn<sup>1</sup>; M. Cserjan<sup>1</sup>; G. Striedner<sup>1</sup>; <sup>1</sup> University of Natural Resources and Life Sciences (BOKU), Vienna/A

P 07 **CO<sub>2</sub>-based biomanufacturing: a Life Cycle Analysis of the TRANSFORMATE platform**  
E. Hegel<sup>1</sup>; F. Kensy<sup>2</sup>; <sup>1</sup> DECHEMA e.V., Frankfurt am Main/D; <sup>2</sup> b.fab GmbH, Köln/D

P 08 **Life Cycle Assessment for Early-Stage Bioprocess Development: Current state and future perspective**  
E. Hegel<sup>1</sup>; K. Wowra<sup>1</sup>; A. Grünberger<sup>2</sup>; K. Rosenthal<sup>3</sup>; <sup>1</sup> DECHEMA e.V., Frankfurt am Main/D;  
<sup>2</sup> Karlsruhe Institute of Technology, Karlsruhe/D; <sup>3</sup> Constructor University, Bremen/D

P 09 **Metabolic Engineering of Corynebacterium glutamicum for Efficient Xylose Utilization in Sustainable Bioprocesses**  
L. Schwarzmann<sup>1</sup>; F. Werner<sup>2</sup>; C. Rückert<sup>1</sup>; V. Wendisch<sup>1</sup>; <sup>1</sup> Bielefeld University, Bielefeld/D;  
<sup>2</sup> Technical University of Munich, Straubing/D

P 10 **Adaptive laboratory evolution is a tool for non-rational strain improvement in sustainable bioprocesses**  
K. Hofer<sup>1</sup>; L. Schwarzmann<sup>2</sup>; V. Wendisch<sup>2</sup>; R. Takors<sup>1</sup>; <sup>1</sup> University of Stuttgart, Stuttgart/D;  
<sup>2</sup> Bielefeld University, Bielefeld/D

P 11 **Microsensor measurements in mycelial pellets – characterizing oxygen transport in filamentous microorganisms**  
Z. Kozanecka<sup>1</sup>; A. Dinius<sup>1</sup>; D. Rasch<sup>1</sup>; D. Hannig<sup>1</sup>; J. Mühlenbrock<sup>1</sup>; J. Pagel<sup>1</sup>; R. Krull<sup>1</sup>;  
<sup>1</sup> TU Braunschweig, Braunschweig/D

P 12 **Repeated batch of cell line cultures in 3L single-use vs. multi-use glass stirred tank bioreactors**  
C. Bernal-Martinez<sup>1</sup>; J. Sterk<sup>2</sup>; T. van Arragon<sup>1</sup>; <sup>1</sup> Getinge, Delft/NL; <sup>2</sup> MSD, Boxmeer/NL

P 13 **3D Printed Bioreactors: Enabling Rapid Process Optimization**  
T. van Arragon<sup>1</sup>; C. Bernal-Martinez<sup>1</sup>; G. Barringer<sup>1</sup>; <sup>1</sup> Getinge, Delft/NL



## POSTER

- P 14 **Towards a defined filamentous co-culture platform for the discovery of new specialized metabolites**  
I. Schlembach<sup>1</sup>; A. Palacio-Barrera<sup>1</sup>; M. Finger<sup>2</sup>; J. Hemmann<sup>1</sup>; G. Lackner<sup>1</sup>; J. Büchs<sup>2</sup>; M. A. Rosenbaum<sup>1</sup>; <sup>1</sup> Leibniz Institute for Natural Product Research and Infection Biology – Hans-Knöll-Institute, Jena/D; <sup>2</sup> RWTH Aachen University, Aachen/D
- P 15 **Bioprocess development for the production of polyphosphates with novel applications**  
P. Demling<sup>1</sup>; J. Fees<sup>1</sup>; A. Deitert<sup>1</sup>; M. Baier<sup>1</sup>; P. Ehlert Jensen<sup>2</sup>; A. Worberg<sup>2</sup>; S. Sudarsan<sup>2</sup>; L. Blank<sup>1</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D; <sup>2</sup> Technical University of Denmark, Kongens Lyngby/DK
- P 16 **Investigation and optimization of cell disruption methods to increase proteolytic activity of brewer's spent yeast fraction**  
M. Schottroff<sup>1</sup>; H. Riebesehl<sup>1</sup>; A. Malvis Romero<sup>1</sup>; M. Schneeberger<sup>2</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology - Institute of Technical Biocatalysis, Hamburg/D; <sup>2</sup> GEA Brewery Systems GmbH, Kitzingen/D
- P 17 **Prediction of the aggregate size distribution of HEK293 cells based on computational fluid dynamics**  
S. Seidel<sup>1</sup>; R. Maschke<sup>1</sup>; F. Mozaffari<sup>1</sup>; R. Eibl<sup>1</sup>; D. Eibl<sup>1</sup>; <sup>1</sup> ZHAW - Zurich University of Applied Sciences, Wädenswil/CH
- P 18 **Heading to phase I – Scale up of the production process of the antibiotic candidate Corallopyronin A to industrial scale**  
M. Grosse<sup>1</sup>; R. Jansen<sup>1</sup>; B. Sandargo<sup>1</sup>; A. Schiefer<sup>2</sup>; S. Alt<sup>3</sup>; K. Pfarr<sup>2</sup>; T. Becker<sup>2</sup>; A. Krome<sup>2</sup>; R. Müller<sup>4</sup>; T. Hesterkamp<sup>3</sup>; K. Wagner<sup>2</sup>; M. Stadler<sup>1</sup>; A. Hoerauf<sup>2</sup>; <sup>1</sup> Helmholtz Center for Infection Research, Braunschweig/D; <sup>2</sup> University Hospital Bonn, Bonn/D; <sup>3</sup> German Centre for Infection Research, Braunschweig/D; <sup>4</sup> Helmholtz Institute for Pharmaceutical Research Saarland, Saarbrücken/D
- P 19 **Turning waste into value: Utilising agricultural waste streams for the biotechnological production of itaconic acid**  
T. Helm<sup>1</sup>; T. Stausberg<sup>1</sup>; M. Previati<sup>2</sup>; L. Claerhout<sup>2</sup>; S. Noack<sup>1</sup>; <sup>1</sup> Forschungszentrum Jülich GmbH, Jülich/D; <sup>2</sup> Bio Base Europe Pilot Plant VZW, Gent/B
- P 20 **Achieving charge variant profile of innovator molecule during development of monoclonal antibody based biosimilars – use of media components**  
N. gangwar<sup>1</sup>; P. Priyanka<sup>2</sup>; A. Rathore<sup>2</sup>; <sup>1</sup> Indian Institute of Technology Delhi, Delhi/IND; <sup>2</sup> Indian Institute of Technology Delhi, New Delhi/IND
- P 21 **Development of a Multi-Enzyme Reaction Cascade for the Synthesis of Sialyllactose Under High Hydrostatic Pressure**  
F. Lopez Haro<sup>1</sup>; J. Reich<sup>1</sup>; M. Schmale<sup>1</sup>; M. Aßmann<sup>2</sup>; K. Hölting<sup>2</sup>; J. Andrich<sup>2</sup>; P. Bubenheim<sup>1</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology (TUHH), Hamburg/D; <sup>2</sup> GALAB Laboratories GmbH., Hamburg/D
- P 22 **Production of ethyl-butyrate in a self-sufficient reaction cascade**  
K. Oehlenschläger<sup>1</sup>; E. Schepp<sup>2</sup>; J. Stiefelmaier<sup>1</sup>; D. Holtmann<sup>2</sup>; R. Ulber<sup>1</sup>; <sup>1</sup> RPTU Kaiserslautern-Landau, Kaiserslautern/D; <sup>2</sup> KIT - Karlsruher Institut für Technologie, Karlsruhe/D

## POSTER

- P 24 **Bioprocess design for production of the biomass-bound pigment astaxanthin in *Corynebacterium glutamicum***  
F. Meyer<sup>1</sup>; J. Seeger<sup>1</sup>; I. Schmitt<sup>1</sup>; V. Wendisch<sup>1</sup>; N. Henke<sup>1</sup>; <sup>1</sup> Bielefeld University, Bielefeld/D
- P 25 **Process Intensification in Biopharmaceutical Process Development**  
J. Walther<sup>1</sup>; <sup>1</sup> Boehringer Ingelheim Pharma GmbH & Co.KG, Biberach an der Riß/D
- P 26 **Fermentative utilization of starch-containing residuals from food production**  
P. Ballmann<sup>1</sup>; S. Lesmeister<sup>1</sup>; S. Dröge<sup>1</sup>; <sup>1</sup> Prüf- und Forschungsinstitut Pirmasens e.V., Pirmasens/D
- P 27 **Eco-friendly extraction of astaxanthin from microbial fermentation broth**  
J. Seeger<sup>1</sup>; K. Schülke<sup>1</sup>; V. Wendisch<sup>1</sup>; N. Henke<sup>1</sup>; <sup>1</sup> Bielefeld University, Bielefeld/D
- P 28 **Enzyme-Assisted Extraction and Purification of Phycobiliproteins from the Red Macroalgae *Palmaria palmata***  
A. Malvis Romero<sup>1</sup>; C. Wolter<sup>1</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology (TUHH), Hamburg/D
- P 29 **Low-biomass concept for industrial biotechnology with engineered *Vibrio natriegens***  
M. Hädrich<sup>1</sup>; C. Schulze<sup>1</sup>; B. Blombach<sup>1</sup>; <sup>1</sup> Technical University of Munich, Straubing/D
- P 30 **Investigation of exopolysaccharide formation and the impact on anaerobic succinate production with *Vibrio natriegens***  
C. Schulze<sup>1</sup>; M. Hädrich<sup>1</sup>; B. Rühmann<sup>1</sup>; B. Blombach<sup>1</sup>; <sup>1</sup> Technical University of Munich, Straubing/D
- P 31 **Increase of cell-specific productivity in Chinese Hamster Ovary (CHO) suspension cultures through illumination with blue LED light**  
S. Föllner<sup>1</sup>; L. Lataster<sup>2</sup>; G. Radziwill<sup>2</sup>; R. Takors<sup>1</sup>; <sup>1</sup> University of Stuttgart, Stuttgart/D; <sup>2</sup> University of Freiburg, Freiburg/D
- P 32 **Closer investigation of the pellet formation for production of protease inhibitors in filamentous fungi**  
W. Soerjawanata<sup>1</sup>; I. Barth<sup>1</sup>; T. Schirmeister<sup>2</sup>; R. Ulber<sup>3</sup>; P. Kampeis<sup>1</sup>; <sup>1</sup> Trier University of Applied Sciences, Hoppstädten-Weiersbach/D; <sup>2</sup> Johannes Gutenberg University Mainz, Mainz/D; <sup>3</sup> University of Kaiserslautern-Landau, Kaiserslautern/D
- P 33 **Fermentation strategy for the cultivation of filamentous fungi with new bioreactor internals to ensure pellet form**  
W. Soerjawanata<sup>1</sup>; I. Barth<sup>1</sup>; T. Schirmeister<sup>2</sup>; R. Ulber<sup>3</sup>; P. Kampeis<sup>1</sup>; <sup>1</sup> Trier University of Applied Sciences, Hoppstädten-Weiersbach/D; <sup>2</sup> Johannes Gutenberg University Mainz, Mainz/D; <sup>3</sup> University of Kaiserslautern-Landau, Kaiserslautern/D
- P 34 **Production strategies for phycocyanin with *Galdieria sulphuraria* based on wastewater from fruit processing**  
P. Scherhag<sup>1</sup>; M. Katzberg<sup>1</sup>; <sup>1</sup> Hochschule für Technik und Wirtschaft Dresden/University of Applied Sciences Dresden, Dresden/D
- P 35 **Genetic modification and bioprocess engineering for surfactin production by *Bacillus* species**  
M. Vahidinasab<sup>1</sup>; M. Hoffmann<sup>1</sup>; P. Klausmann<sup>1</sup>; C. Treinen<sup>1</sup>; E. Benatto Perino<sup>1</sup>; L. Lilge<sup>1</sup>; R. Hausmann<sup>1</sup>; <sup>1</sup> University of Hohenheim, Stuttgart/D

## POSTER

- P 36 **A CFD model for the calculation of power inputs in shaken bioreactors**  
S. Hansen<sup>1</sup>; A. Gumprecht<sup>2</sup>; C. Dinter<sup>3</sup>; J. Büchs<sup>3</sup>; <sup>1</sup> Evonik Operations GmbH, Marl/D;  
<sup>2</sup> Evonik Operations GmbH, Hanau/D; <sup>3</sup> RWTH Aachen University, Aachen/D
- P 37 **Hybrid modeling for cell culture upstream process development**  
J. Müller<sup>1</sup>; S. Arnold<sup>1</sup>; T. Wucherpennig<sup>1</sup>; B. Knapp<sup>1</sup>; J. Schaub<sup>1</sup>; <sup>1</sup> Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach a. d. Riß/D
- P 38 **Development of new bioreactor internals for the cultivation of filamentous fungi**  
I. Barth<sup>1</sup>; W. Soerjawanata<sup>1</sup>; T. Schirmeister<sup>2</sup>; R. Ulber<sup>3</sup>; P. Kampeis<sup>1</sup>; <sup>1</sup> Trier University of Applied Sciences, Hoppstädten-Weiersbach/D; <sup>2</sup> Johannes Gutenberg University Mainz, Mainz/D; <sup>3</sup> University of Kaiserslautern-Landau, Kaiserslautern/D
- P 39 **Accelerated bioprocess development for peroxidase producing *K. phaffii* strains with automated sample processing and microscale cultivation**  
C. Wagner<sup>1</sup>; P. Zinn<sup>1</sup>; J. Schwing<sup>2</sup>; T. Radespiel<sup>2</sup>; W. Wiechert<sup>1</sup>; A. Glieder<sup>3</sup>; M. Oldiges<sup>1</sup>; <sup>1</sup> Forschungszentrum Jülich, Jülich/D; <sup>2</sup> BYK-Chemie GmbH, Wesel/D; <sup>3</sup> bisy GmbH, Hofstätten/A
- P 40 **Benchtop NMR-Based In-line Quantification and Validation of Diastereomeric  $\alpha$ -Amino Acid Enzymatic Synthesis**  
L. Schmidt<sup>1</sup>; L. Jolly<sup>2</sup>; L. Hennecke<sup>1</sup>; H. Gröger<sup>2</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology (TUHH), Hamburg/D; <sup>2</sup> University of Bielefeld, Bielefeld/D
- P 41 **Biotechnological upcycling of mixed plastic fractions – Challenges and perspectives**  
T. Tiso<sup>1</sup>; B. Wolter<sup>1</sup>; N. Utomo<sup>1</sup>; R. Reifsteck<sup>1</sup>; S. Zhai<sup>1</sup>; M. Gausmann<sup>1</sup>; R. Wei<sup>2</sup>; U. Bornscheuer<sup>2</sup>; A. Jupke<sup>1</sup>; H. Ballerstedt<sup>1</sup>; L. Blank<sup>1</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D; <sup>2</sup> University of Greifswald/D
- P 42 **Towards a (semi-) automated and highly flexible workflow for making DBTL cycling happen in synthetic biology**  
L. Hägele<sup>1</sup>; R. Takors<sup>2</sup>; <sup>1</sup> Universität Stuttgart, Stuttgart/D; <sup>2</sup> University of Stuttgart/D
- P 43 **From Waste to Worth: Advancing Sustainable Epoxy Recycling with Laccase-Mediator Systems**  
L. Klose<sup>1</sup>; N. Meyer-Heydecke<sup>1</sup>; S. Wongwattananat<sup>2</sup>; J. Chow<sup>2</sup>; P. Pérez Garfía<sup>2</sup>; C. Carré<sup>3</sup>; W. Streit<sup>2</sup>; G. Antranikian<sup>1</sup>; A. Malvis Romero<sup>1</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology, Hamburg/D; <sup>2</sup> University of Hamburg, Hamburg/D; <sup>3</sup> Airbus Defense and Space GmbH, Munich/D
- P 44 **Dynamic microfluidic single-cell cultivation – a versatile tool for bioprocess development**  
L. Blöbaum<sup>1</sup>; S. Täuber<sup>1</sup>; A. Grünberger<sup>2</sup>; <sup>1</sup> Bielefeld University, Bielefeld/D; <sup>2</sup> KIT - Karlsruher Institut für Technologie, Karlsruhe/D
- P 45 **High-throughput phytase screening by online monitoring of the respiratory activity identifies high-activity variants**  
S. Straaten<sup>1</sup>; A. Ruff<sup>1</sup>; J. Stotz<sup>1</sup>; U. Schwaneberg<sup>1</sup>; J. Büchs<sup>1</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D
- P 46 **Robotics and AI for next level bioprocess development**  
T. Wolf<sup>1</sup>; L. Hebing<sup>1</sup>; B. Heyman<sup>1</sup>; M. Hoffstadt<sup>1</sup>; S. Niedenführ<sup>1</sup>; <sup>1</sup> Bayer AG, Leverkusen/D

## POSTER

- P 47 **Effect of different partial pressures on hydrogen production in *Parageobacillus thermoglucosidasius* DSM 6285**  
M. Ardila<sup>1</sup>; A. Neumann<sup>1</sup>; H. Aliyu<sup>1</sup>; <sup>1</sup> Karlsruher Institut für Technologie, Karlsruhe/D
- P 48 **Acetic acid concentration, growth rate and mass transfer rate govern shifts in CO metabolism of *Clostridium autoethanogenum***  
M. Elisiario<sup>1</sup>; W. Van Hecke<sup>2</sup>; H. De Wever<sup>2</sup>; H. Noorman<sup>1</sup>; A. Straathof<sup>1</sup>; <sup>1</sup> Delft University of Technology, Delft/NL; <sup>2</sup> Flemish Institute for Technological Research (VITO), Mol/B
- P 49 **Debottlenecking of an enzyme cascade reaction for synthesis of Cinnamyl Cinnamate**  
G. Brauckmann<sup>1</sup>; C. Engelmann<sup>1</sup>; F. Meyer<sup>2</sup>; V. Filiz<sup>3</sup>; T. Brinkmann<sup>3</sup>; A. Liese<sup>1</sup>; M. Skiborowski<sup>2</sup>; T. Waluga<sup>2</sup>; P. Bubenheim<sup>1</sup>; <sup>1</sup> Hamburg University of Technology - Institute of Technical Biocatalysis, Hamburg/D; <sup>2</sup> Hamburg University of Technology - Institute of Process Systems Engineering, Hamburg/D; <sup>3</sup> Helmholtz-Zentrum Hereon - Institute of Membrane Research, Geesthacht/D
- P 50 **LC-MS/MS based Subcellular Quantification of Sugar Nucleotides in CHO secretory pathway**  
N. Hetterscheidt<sup>1</sup>; A. Teleki<sup>1</sup>; R. Takors<sup>1</sup>; <sup>1</sup> University of Stuttgart, Stuttgart/D
- P 51 **Process Development for fish cell suspension cultivation**  
K. Wohlers<sup>1</sup>; R. Heinze<sup>1</sup>; D. Nguyen<sup>1</sup>; <sup>1</sup> Bluu Seafood, Lübeck/D
- P 52 **The application of simple model predictive control system for fed-batch fermentations**  
J. Vanags<sup>1</sup>; <sup>1</sup> Bioreactors.net AS, Riga/LV
- P 53 **Optimization of Operational Parameters for Sophorolipid Filtration: A Crucial Step in Waste Lipid Bioconversion**  
A. Suleiko<sup>1</sup>; K. Dubencovs<sup>1</sup>; J. Vanags<sup>1</sup>; <sup>1</sup> Bioreactors.net AS, Riga/LV
- P 54 **A scalable high-yield process for production of influenza A virus defective interfering particles and in vivo studies**  
L. Pelz<sup>1</sup>; T. Dogra<sup>1</sup>; J. Boehme<sup>2</sup>; J. Kuechler<sup>1</sup>; O. Kershaw<sup>3</sup>; M. Hein<sup>4</sup>; P. Marichal-Gallardo<sup>1</sup>; Y. Genzel<sup>1</sup>; D. Bruder<sup>2</sup>; S. Kupke<sup>1</sup>; U. Reich<sup>5</sup>; <sup>1</sup> Max Planck Institute for Dynamics of Complex Technical Systems (Bioprocess Engineering), Magdeburg/D; <sup>2</sup> Helmholtz Centre for Infection Research (Immune Regulation) and Otto von Guericke University (Institute of Medical Microbiology), Braunschweig and Magdeburg/D; <sup>3</sup> Freie Universität Berlin (Department of Veterinary Pathology), Berlin/D; <sup>4</sup> Otto von Guericke University Magdeburg (Bioprocess Engineering), Magdeburg/D; <sup>5</sup> Max Planck Institute for Dynamics of Complex Technical Systems (Bioprocess Engineering) and Otto von Guericke University Magdeburg (Bioprocess Engineering), Magdeburg/D
- P 55 **Dynamic feedback loop control of biomass concentration for efficient in-situ crossflow microfiltration for enzyme production**  
K. Hellmuth<sup>1</sup>; P. Grünert<sup>1</sup>; <sup>1</sup> Chr. Hansen GmbH, Nienburg/D
- P 56 **Immobilization of Unspecific Peroxygenase from *Agrocybe aegerita* on Novel Globographtite Electrode for a Bioelectrochemical Reaction Cascade**  
V. Bueschler<sup>1</sup>; G. Sayoga<sup>1</sup>; H. Beisch<sup>2</sup>; D. Ohde<sup>1</sup>; B. Fiedler<sup>2</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology - Institute of Technical Biocatalysis, Hamburg/D; <sup>2</sup> Hamburg University of Technology - Institute of Polymers and Composites, Hamburg/D

## POSTER

- P 57 **ECOnti – A continuous, 2-stage chemostat manufacturing platform using bacteriophage inspired growth-decoupled *Escherichia coli***  
F. Simon<sup>1</sup>; P. Stargardt<sup>2</sup>; N. Danielewicz<sup>2</sup>; F. Weiss<sup>2</sup>; F. Strobl<sup>2</sup>; J. Berein<sup>2</sup>; L. Feuchtenhofer<sup>2</sup>; G. Striedner<sup>1</sup>; J. Mairhofer<sup>2</sup>; <sup>1</sup> University of Natural Resources and Life Sciences, Vienna, Vienna/A; <sup>2</sup> enGenes Biotech GmbH, Vienna/A
- P 58 **Extracellular expression of active endonuclease derived from *Serratia marcescens* using a growth-decoupled *Escherichia coli* strain**  
J. Berein<sup>1</sup>; L. Tremmel<sup>1</sup>; J. Mairhofer<sup>1</sup>; <sup>1</sup> enGenes Biotech GmbH, Vienna/A
- P 59 **Production, characterization, and modification of biopolymers for application in zinc-based batteries**  
D. Lammers<sup>1</sup>; J. Niebusch<sup>2</sup>; R. Heydorn<sup>2</sup>; C. Peña<sup>3</sup>; K. Rainer<sup>2</sup>; K. Dohnt<sup>1</sup>; <sup>1</sup> TU Braunschweig, Braunschweig /D; <sup>2</sup> TU Braunschweig, Braunschweig/D; <sup>3</sup> Universidad Nacional Autónoma de México, Cuernavaca/MEX
- P 60 **Increasing Catalyst Efficiency in a Bioelectrochemical System Through On-Demand Hydrogen Peroxide Generation by the All-in-One Electrode Concept**  
G. Sayoga<sup>1</sup>; V. Bueschler<sup>1</sup>; H. Beisch<sup>1</sup>; A. Zeng<sup>1</sup>; B. Fiedler<sup>1</sup>; D. Ohde<sup>1</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology (TUHH), Hamburg/D
- P 61 **Alternative carbon sources for the cell growth of the PHB forming bacterium *Cupriavidus necator***  
F. Berthold<sup>1</sup>; M. Lederer<sup>1</sup>; C. Hausmann<sup>1</sup>; S. Stute<sup>1</sup>; <sup>1</sup> Technische Hochschule Nürnberg Georg Simon Ohm, Nürnberg/D
- P 62 **Development of cell culture-based production processes for insect viruses to enable targeted insecticide applications**  
K. Lothert<sup>1</sup>; Y. Harsy<sup>1</sup>; T. Gröb<sup>1</sup>; K. Lee<sup>2</sup>; M. Wolff<sup>1</sup>; <sup>1</sup> Technische Hochschule Mittelhessen, Giessen/D; <sup>2</sup> Fraunhofer Institute for Molecular Biology and Applied Ecology (IME), Giessen/D
- P 63 **Enzymatic Synthesis of Acetyl Phosphate Using Glycolaldehyde as a Low-Cost Substrate**  
J. Kundoch<sup>1</sup>; F. Kraußner<sup>2</sup>; D. Ohde<sup>1</sup>; T. Walther<sup>2</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology (TUHH), Hamburg/D; <sup>2</sup> Technische Universität Dresden, Dresden/D
- P 64 **Hydrodynamic characterization of a multi-phase loop reactor capable of in situ liquid-liquid extraction**  
D. Wall<sup>1</sup>; A. Jupke<sup>1</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D
- P 65 **Ethylene glycol is an interesting platform molecule for microbial CO<sub>2</sub>-based product syntheses**  
N. Wagner<sup>1</sup>; F. Kraußner<sup>1</sup>; C. Frazão<sup>1</sup>; T. Walther<sup>1</sup>; <sup>1</sup> Technische Universität Dresden, Dresden/D
- P 66 **Biocatalytic conversion of cyclohexanol to adipic acid using *Pseudomonas taiwanensis* VLB120**  
A. Franz<sup>1</sup>; R. Karande<sup>1</sup>; <sup>1</sup> University of Leipzig, Leipzig/D
- P 67 **Integrated and solvent-free separation of the polyol lipid liamocin**  
F. Haala<sup>1</sup>; M. Dielentheis-Frenken<sup>1</sup>; L. Blank<sup>1</sup>; T. Tiso<sup>1</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D

## POSTER

- P 68 **Systematic study of liquid-liquid extraction of fermentation broths with microorganisms**  
J. Eberz<sup>1</sup>; S. Sibirtsev<sup>1</sup>; A. Jupke<sup>1</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D
- P 69 ***Pichia pastoris* growth – coupled intracellular heme biosynthesis analysis using metabolic modelling**  
A. Pentjuss<sup>1</sup>; E. Bolmanis<sup>2</sup>; A. Kazaks<sup>2</sup>; E. Didrihsone<sup>1</sup>; A. Suleiko<sup>3</sup>; J. Vanags<sup>3</sup>; <sup>1</sup> Latvian State Institute of Wood Chemistry, Riga/LV; <sup>2</sup> Latvian Biomedical Research and Study Centre, Riga/LV; <sup>3</sup> Bioreactors.net AS, Riga/LV
- P 70 **ModiBioPol – A study on the production of customized polyhydroxybutyrate using a two-stage continuous fermentation process**  
M. Lederer<sup>1</sup>; F. Berthold<sup>1</sup>; S. Stute<sup>1</sup>; <sup>1</sup> Technische Hochschule Nürnberg Georg Simon Ohm, Nürnberg/D
- P 71 **Implementing acetate as carbon source in a bioprocess for sustainable biosurfactant production**  
C. Michel<sup>1</sup>; A. Hampe<sup>1</sup>; L. Breuer<sup>1</sup>; T. Tiso<sup>1</sup>; L. Blank<sup>1</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D
- P 72 **Fine Bubble Aeration in Applied Biocatalysis**  
Z. Perçin<sup>1</sup>; L. Kursula<sup>2</sup>; P. Bubenheim<sup>1</sup>; M. Hoffmann<sup>2</sup>; E. Löfgren<sup>3</sup>; E. Byström<sup>3</sup>; M. Schlüter<sup>2</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology, Institute of Technical Biocatalysis, Hamburg/D; <sup>2</sup> Hamburg University of Technology, Institute of Multiphase Flows, Hamburg/D; <sup>3</sup> SpinChem AB, Umeå/S
- P 73 **Effect of High Pressure on the Activity of Oxidative Enzymes in a Two-Phase Biocatalytic Reactor Setup**  
A. Lyberis<sup>1</sup>; D. Niehaus<sup>1</sup>; Z. Perçin<sup>1</sup>; P. Bubenheim<sup>1</sup>; M. Schlüter<sup>1</sup>; A. Liese<sup>1</sup>; <sup>1</sup> Hamburg University of Technology (TUHH), Hamburg/D
- P 74 **Portable multiple-LED photometer for application in bioprocesses**  
S. Di Nonno<sup>1</sup>; R. Ulber<sup>1</sup>; <sup>1</sup> RPTU Kaiserslautern-Landau, Kaiserslautern/D
- P 76 **Automated and miniaturized <sup>13</sup>C-isotopic labeling experiments in microtiter plate scale**  
J. Nießer<sup>1</sup>; M. Müller<sup>1</sup>; W. Wiechert<sup>1</sup>; S. Noack<sup>1</sup>; <sup>1</sup> Forschungszentrum Jülich GmbH, Jülich/D
- P 77 **Implementing a setup for in-situ product removal by reactive extraction in carboxylic acid fermentations**  
K. Saur<sup>1</sup>; R. Kiefel<sup>1</sup>; S. Vennes<sup>1</sup>; F. Roweda<sup>1</sup>; L. Grebe<sup>1</sup>; J. Büchs<sup>1</sup>; A. Jupke<sup>1</sup>; <sup>1</sup> RWTH Aachen University, Aachen/D
- P 78 **Centrifugal Partition Chromatography: Separation Performance Optimization during long-term Operation**  
F. Buthmann<sup>1</sup>; M. Neuwald<sup>1</sup>; G. Schembecker<sup>1</sup>; <sup>1</sup> TU Dortmund University, Dortmund/D
- P 79 **Exploring new capabilities of a microbioreactor to improve biocementation**  
F. Lapierre<sup>1</sup>; R. Hubert<sup>1</sup>; <sup>1</sup> Hochschule München University of Applied Sciences, München/D
- P 81 **Exploring acetate as a feedstock for microbial production of food and chemicals**  
C. Zhang<sup>1</sup>; Y. Zhang<sup>2</sup>; A. Yap<sup>2</sup>; J. Ong<sup>2</sup>; T. Nguyen<sup>2</sup>; N. Tan<sup>1</sup>; <sup>1</sup> Agency for Science, Technology and Research (A\*STAR), Singapore/SG; <sup>2</sup> Singapore Institute of Food and Biotechnology Innovation (SIFBI), Singapore/SG





## ORGANISER

DECHEMA e.V.

Theodor-Heuss-Allee 25  
60486 Frankfurt am Main  
[www.dechema.de](http://www.dechema.de)