

## CONFERENCE DAY 1 • 08 OCTOBER 2025

10:00 Check-In

### 11:30 **OPENING**

Opening by Carsten Schilde, Conference Chair, TU Braunschweig

Welcome address by Prof. Dr. Manfred Krafczyk, Vice President for Digital Transformation and Sustainability, TU Braunschweig, Germany

### KEYNOTE LECTURE

Chair: **Carsten Schilde**

### 11:45 **Predictive Modeling and Digital Twins: Shaping the Future of Pharmaceutical Development**

Johan Remmelgas, PhD - Director, Modeling & Simulation, Sustainable Innovation and Transformational, Excellence Pharmaceutical Technology & Development  
AstraZeneca, Sweden

12:30 Lunch Break

### SESSION I: Analytics, PAT

Chair: **Matthias Schiedel**

### 13:30 **INVITED LECTURE**

#### **Deploying Bioanalytics for Decrypting PK/PD Relationships**

Katharina Rox<sup>1,2</sup>; Metzen A<sup>1,2</sup>

<sup>1</sup> Department of Chemical Biology, Helmholtz Centre for Infection Research (HZI)  
Braunschweig, Germany

<sup>2</sup> German Centre for Infection Research (DZIF), Partner-site Hannover-Braunschweig, Germany

### 13:55 **THz-TDS as a PAT Tool for Physical Tablet Characteristics: Simultaneous Quantification of Crystallinity, Mass, Thickness, and Porosity**

Moritz Anuschek, Thomas Kvistgaard Vilhelmsen

Novo Nordisk A/S, CMC Oral Product Development, Denmark

### 14:10 **Advanced Synthesis Strategies for Molecularly Imprinted Polymers: Targeted Extraction of Thymol via Design of Experiments**

Dolejsova Sekerova Lada, Smidova Anna, Krizova Anna, Vyskocilova Eliska

Department of Organic Technology, University of Chemistry and Technology Prague, Czech Republic

### 14:25 **Next-Generation Laser Diffraction for Precision Analysis of Particles for Inhalation**

U. Köhler<sup>1</sup>, T. Stübinger<sup>1</sup>, A. Borodin<sup>1</sup>, D. Jupke<sup>2</sup>, D. Ivanov<sup>2</sup>, J. H. Finke<sup>2</sup>, K. Vorländer<sup>2</sup>, C. Schilde<sup>2</sup>, A. Kwade<sup>2</sup>

<sup>1</sup> Sympatec GmbH, Germany

<sup>2</sup> Institute for Particle Technology and Center of Pharmaceutical Engineering (PVZ),  
TU Braunschweig, Germany

14:40 Bio Break

## SESSION II: SCALE-UP / SCALE-DOWN PROCESSES

Chair: **Stephan Scholl**

- 15:10 **INVITED LECTURE**  
**From Microscale Synthesis to Bioactivity: Rapid Discovery of Serine Protease Inhibitors**  
Dmitrii V. Kalinin  
Institute of Pharmaceutical and Medicinal Chemistry, University of Münster, Germany
- 15:35 **Development of a Model to Predict Die Filling Under Suction for Different Scales and Setups of Rotary Tablet Presses**  
Lars Wagner<sup>1,2</sup>; Ann Kathrin Schomberg<sup>1,2</sup>; Arno Kwade<sup>1,2</sup>; Jan Henrik Finke<sup>1,2</sup>  
<sup>1</sup> Institute for Particle Technology (iPAT), <sup>2</sup> Center of Pharmaceutical Engineering (PVZ)  
TU Braunschweig, Germany
- 15:50 **Impact of Feed Frame Design on the Die Filling Behavior of Pharmaceutical Excipients on a Compaction Simulator**  
Ben Kohlhaas<sup>1,2</sup>, Anna Schönberg<sup>1,2</sup>, Jan Henrik Finke<sup>1,2</sup>  
<sup>1</sup> Institute for Particle Technology (iPAT), <sup>2</sup> Center of Pharmaceutical Engineering (PVZ)  
TU Braunschweig, Germany
- 16:05 **“Two-in-One” - Reconsidering Continuous Melt Granulation**  
Maximilian Hölzel, Jens Bartsch  
Labor für Feststoffverfahrenstechnik, TU Dortmund  
Dortmund, Germany
- 16:20 **Scale-Up of Processes for Separators from Pilot Scale to Production Scale**  
Thomas Homann<sup>1</sup>, Michael Schulz<sup>2</sup>  
<sup>1</sup>GEA Westfalia Separator Group GmbH, Germany  
<sup>2</sup>GEA Germany GmbH, Germany
- 16:35 *Bio Break*

## POSTER SESSION

Chair: **Stephan Reichl**

- 17:15 Poster Short Talks
- 18:10 Poster Party

END OF DAY

## CONFERENCE DAY 2 • 09 October 2025

08:00 Check-In

### KEYNOTE LECTURE

Chair: Heike Bunjes

08:30 **Orodispersible Minitablets for the Individual Treatment of Children - From the Idea to the Market**

Jörg Breitzkreutz, Institute of Pharmaceutics and Biopharmaceutics  
Heinrich-Heine-Universität Düsseldorf, Germany

### SESSION III: SOLID DOSAGE FORMS

Chair: Heike Bunjes

09:15 **INVITED LECTURE**

**Solid Dosage Form Development – Challenges and Visions**

Susanne Page,  
Pharmaceutical R&D, F. Hoffmann-La Roche Ltd., Switzerland

09:40 **Is There a Limit for Vitamin E TPGS to Increase API Release from High Drug-load ASDs?**

I. Fahrig<sup>1</sup>, S. Walter<sup>2</sup>, S. Kyeremateng<sup>2</sup>, M. Degenhardt<sup>2</sup>, C. Brandenbusch<sup>1</sup>, G. Sadowski<sup>1</sup>

<sup>1</sup>Laboratory of Thermodynamics, TU Dortmund, Germany,

<sup>2</sup>AbbVie Deutschland GmbH & Co. KG, Development Sciences, R&D, Germany

09:55 **Aspects of Sustainability in Amorphous Drug and Dosage Form Design**

Thomas Rades  
Copenhagen University, Denmark

10:10 **Application of an Extended In-Die Compressibility Model to Elucidate Material-Dependent Influences of Compaction Kinetics**

M. S. Brunotte<sup>1,2</sup>, M. Juhnke<sup>3</sup>, A. F. Amado Becker<sup>3</sup>, A. Kwade<sup>1,2</sup>, J. H. Finke<sup>1,2</sup>

<sup>1</sup> Institute for Particle Technology, TU Braunschweig, Germany

<sup>2</sup> Center of Pharmaceutical Engineering (PVZ), TU Braunschweig, Germany

<sup>3</sup> F. Hoffmann-La Roche AG, Switzerland

10:25 **Particle-Based Silica Aerogels as Drug Delivery Systems**

Jennifer Pierick, Jan Henrik Finke, Georg Garnweitner  
Institute for Particle Technology and Center for Pharmaceutical Engineering (PVZ),  
TU Braunschweig, Germany

10:45 *Bio Break*

### SESSION IV: SEMI-SOLID & LIQUID DOSAGE FORMS

Chair: Jan Henrik Finke

11:00 **INVITED LECTURE**

**Regulatory Driven Development of Topical Semisolid Generic Drug Products: Impact of New EMA Guideline**

Snežana Savić, Tanja Ilić

Department of Pharmaceutical Technology and Cosmetology, University of Belgrade-Faculty of Pharmacy, Serbia

11:25 **Influence of Salts and pH on Solubility and Partitioning of Active Pharmaceutical Ingredients**

Espen Fritschka, Gabriele Sadowski  
Laboratory for Thermodynamics, TU Dortmund University, Germany

- 11:40    **Use of Nickel-Based Membranes in Premix Membrane Emulsification**  
C. Heidenreich<sup>1,2</sup>, J. M. Lück<sup>3</sup>, D. Jupke<sup>2,4</sup>, J. H. Finke<sup>2,4</sup>, A. Kwade<sup>2,4</sup>, J. Rösler<sup>3</sup>,  
H. Bunjes<sup>1,2</sup>  
<sup>1</sup>Institute of Pharmaceutical Technology and Biopharmaceutics, TU Braunschweig, Germany  
<sup>2</sup>Center for Pharmaceutical Engineering, TU Braunschweig, Germany  
<sup>3</sup>Institute for Materials Science, TU Braunschweig, Germany  
<sup>4</sup>Institute for Particle Technology TU Braunschweig, Germany
- 11:55    **Antisolvent Crystallisation with Excipients as Heteronucleation Templates – a Method for API Co-Processing?**  
Emilia Jakubowska<sup>1,2</sup>, František Štěpánek<sup>1</sup>  
<sup>1</sup>Department of Chemical Engineering, University of Chemistry and Technology Prague, Czech Republic  
<sup>2</sup>Chair and Department of Pharmaceutical Technology, Poznan University of Medical Sciences, Poland
- 12:10    **Innovative Uses of Phospholipids as Excipients in Conventional Liquid and Solid Dosage Forms**  
Dr. Andreas Erthle  
Lipoid GmbH, Germany
- 12:25    **Preparation of Lipid Nanoemulsions Using a CFD Simulation Aided Dual Centrifugation Approach**  
Nico Hellmund, Venkatesh Inguva, Denise Steiner  
Department of Pharmaceutical Technology and Biopharmaceutics, University of Muenster, Germany
- 12:45    *Lunch Break*

## SESSION V: DIGITAL MODELS IN PHARMACEUTICAL DEVELOPMENT

Chair: Carsten Schilde

- 14:15    **INVITED LECTURE**  
**Opportunities and Challenges in Digital Product Design for the Pharmaceutical Industry**  
T. Forgber  
RCPE GMBH, Graz, Österreich
- 14:40    **Advancing Lyophilization through PAT-Enabled Digital Twins and Mechanistic Modeling**  
Alex Juckers, Petra Knerr, Frank Harms,  
Martin Christ Gefriertrocknungsanlagen GmbH, Germany
- 14:55    **IntelliPress - AI-driven Scale-Up of Tablet Manufacturing through Inline Prediction of Critical Quality Attributes**  
J. Streckenbach<sup>1</sup>, N. Kuehnel<sup>1</sup>, P. Braun<sup>1</sup>, M. Rosch<sup>1</sup>, F. Guetter<sup>1</sup>, D. Dormagen<sup>2,3</sup>, T. Landgraf<sup>2,3</sup>  
<sup>1</sup> KORSCH AG, Germany  
<sup>2</sup> CIATA UG, Germany  
<sup>3</sup> Freie Universität Berlin, Germany
- 15:10    **DEM Study Investigating the Effect of Particle Shape on Compaction of Realistic Non-Spherical Particles Using Convolutional Neural Network**  
K. Giannis<sup>1,2</sup>, C. Thon<sup>1</sup>, J. Guo<sup>1,2</sup>, J. H. Finke<sup>1,2</sup>, A. Kwade<sup>1,2</sup>, C. Schilde<sup>1,2</sup>  
<sup>1</sup> Institute for Particle Technology (iPAT), TU Braunschweig, Germany  
<sup>2</sup> PVZ - Center of Pharmaceutical Engineering, TU Braunschweig, Germany
- 15:30    *Bio Break*

### SPECIAL GUEST SESSION

Chair: **Matthias Schiedel**

- 15:45 **AI in Pharmaceutical Sciences: Let's talk about data**  
Oliver Koch  
*University of Münster, Germany*
- 16:45 END OF DAY
- 18:00 Conference Dinner  
Restaurant: Zucker, Frankfurter Straße 2 on the ARTmax area, 38122 Braunschweig

### CONFERENCE DAY 3 • 10 OCTOBER 2025

08:00 Check-In

#### CAREER SESSION

Chair: **Iordania Constantinou**

- 08:30 Dr. Antje Begerad, GEA  
Dr. Nicole Beißner, Bayer  
Dr. Kerstin Wohlgemuth, TU Dortmund  
Prof. Dr. Denise Steiner, Universität Münster
- 10:00 *Bio Break*

#### SESSION VI: API Synthesis

Chair: **Ludger Beerhues**

- 10:15 **INVITED LECTURE**  
**Towards Novel Antibiotics: The Synthesis of Natural Product Analogues for Anti-Infective Medicinal Chemistry**  
Christian Ducho  
*Department of Pharmacy, Pharmaceutical and Medicinal Chemistry, and PharmaScience Hub (PSH), Saarland University, Germany*
- 10:40 **Process Performance Optimization of the Continuous Vacuum Screw Filter for Varying Suspensions**  
M. P. Meier, C. I. Eicken, D. A. Rysch, J. Marschner, K. Wohlgemuth  
*Laboratory of Plant and Process Design, TU Dortmund University, Germany*
- 10:55 **Production of kolanone in engineered yeast**  
Yawen Gu<sup>1</sup>, Lukas Ernst<sup>1</sup>, Ludger Beerhues<sup>1,2</sup>, Benye Liu<sup>1,2</sup>  
<sup>1</sup> *Institute of Pharmaceutical Biology, TU Braunschweig, Germany*  
<sup>2</sup> *Center of Pharmaceutical Engineering (PVZ), TU Braunschweig, Germany*
- 11:10 **In-Situ Nucleation and Fouling Management in Continuous Slug Flow Crystallization for Reliable Particle Design**  
Maximilian Rainer Kattner, Max Charles Heischmann, Esra Topal, Fabian Mathias Doedens, Kerstin Wohlgemuth  
*Laboratory of Plant and Process Design, TU Dortmund University, Germany*
- 11:25 **From Measurement to Performance: Characterizing Density and Porosity of Pharmaceutical Products**  
Sönke Wengler-Rust  
*Anton Paar Germany GmbH, Germany*
- 11:45 *Bio Break*

## SESSION VII: MICROSYSTEMS FOR PHARMACEUTICAL PROCESSING

Chair: **Andreas Dietzel**

### 12:00 INVITED LECTURE

#### **Enabling Materials for Biomicrofluidics: from Interactions with Biochemistry to Biology**

Thomas E. Winkler

*Micro- and Nanosystems, KTH Royal Institute of Technology, Sweden*

*Institute of Microtechnology, TU Braunschweig, Germany*

### 12:25 **Integration of Transparent Electrode Arrays for Impedance Monitoring in Microfluidic Cell Culture System**

Liubov Bakhchova<sup>1,2</sup>, Andreas Dietzel<sup>2</sup>, Vadim Issakov<sup>1</sup>

<sup>1</sup>*Institute for CMOS Design, TU Braunschweig*

<sup>2</sup>*Institute of Microtechnology, TU Braunschweig*

### 12:40 **Application of a Design of Experiments for the development and optimization of a custom cell culture medium for CI-hAELVi cells**

Hannah L. Hölterhoff, Stephan Reichl

*Institute of Pharmaceutical Technology and Biopharmaceutics and Center of Pharmaceutical Engineering (PVZ), TU Braunschweig, Deutschland*

### 12:55 **LNP Synthesis Chip with In-situ Size Monitoring**

E. Taedinejad<sup>1,2</sup>, C. Bausch<sup>3</sup>, J. Wittek<sup>3</sup>, M. Baßler<sup>3</sup>, A. Dietzel<sup>1,2</sup>

<sup>1</sup>*Institute of Microtechnology, TU Braunschweig, Germany*

<sup>2</sup>*Center of Pharmaceutical Engineering (PVZ), TU Braunschweig, Germany*

<sup>3</sup>*Fraunhofer Institute for Microengineering and Microsystems (IMM), Germany*

### 13:10 **Evaluating the Printability and Mechanical Properties of Natural Gums - based Hydrogels for Bioprinting**

M. Yousaf, H. Kutluk, L. Balters, S. Reichl, I. Constantinou

*TU Braunschweig, Germany*

### 13:30 SPhERe 2025 POSTER AWARDS

Remarks & Conclusions



# 6th International Symposium on Pharmaceutical Engineering Research – SPhERe

08 – 10 October 2025

## Poster Session – Detailed Programme

### Poster Exhibition

The poster tour starts immediately after the introductory presentation. All poster presenters are kindly asked to be available at the poster area (1st floor).

#### WEDNESDAY, 08 OCTOBER 2025

17:15 Short Introduction by Stephan Reichl

#### P-I: Analytics, PAT

- P-I.1 EXPOSING IPSC-DERIVED BRAIN PERICYTES-LIKE CELLS TO ITACONATE SUPPORTS METABOLIC TREATMENT APPROACH FOR INFLAMMATORY CONDITIONS AND OXIDATIVE STRESS  
*Franziska Buck, Institute of Microtechnology, TU Braunschweig*
- P-I.2 AFFINITY CAPILLARY ELECTROPHORESIS AS A BINDING ASSAY FOR THE MEMBRANE PROTEIN CXCR2  
*Jana Haegner, Institute of Medicinal and Pharmaceutical Chemistry, TU Braunschweig*
- P-I.3 EFFECT OF POLYMERIZATION MECHANISM ON THE PROPERTIES AND PERFORMANCE OF MOLECULARLY IMPRINTED POLYMERS  
*Anna Šmídová, Department of Organic Technology, UCT Prague*
- P-I.4 ADVANCING PROCESS MONITORING AND MODELING FOR FILAMENTOUS MICROORGANISMS IN BIOPROCESSING  
*Leonie Schumann, Institute of Biochemical Engineering, Center of Pharmaceutical Engineering, TU Braunschweig*

#### P-II: Scale-Up / Scale-Down Processes

- P-II.1 LOW-GRADIENT MAGNETIC SEPARATION IN BIOTECHNOLOGY: PARAMETER IDENTIFICATION AND MODEL-GUIDED SCALE UP  
*Jan-Angelus Meyer, Institute of Biochemical Engineering, TU Braunschweig*

P-II.2 DEVELOPMENT OF AN EXPERIMENTAL SETUP FOR THE QUANTIFICATION OF STICKING AND PICKING DURING TABLETING  
*Hasti Ghanadimaragheh, Institute for Particle Technology, Center of Pharmaceutical Engineering, TU Braunschweig*

P-II.3 PROCESS CONCEPTUALIZATION FOR THE CONTINUOUS SYNTHESIS OF MOLECULARLY IMPRINTED POLYMERS  
*Sven Gutperl, TU Braunschweig*

### P-III: Solid Dosage Forms

P-III.1 CONTINUOUS RING LAYER GRANULATION OF SOLUBLE AND INSOLUBLE CARRIER MATERIALS  
*L. Bahlmann, Institute for Particle Technology, Center for Pharmaceutical Engineering, TU Braunschweig*

P-III.2 EVALUATION OF PRILLING TECHNOLOGY FOR THE PRODUCTION OF PHARMACEUTICAL PELLETS  
*Eva Denk, Glatt Pharmaceutical Services GmbH & Co. KG  
Institute for Particle Technology, Center of Pharmaceutical Engineering, TU Braunschweig*

P-III.3 NANOPARTICLES MEET FLUID BED: A WAY TO IMPROVE THE BIOAVAILABILITY OF POORLY SOLUBLE DRUGS  
*Annette Grave, Glatt Pharmaceutical Services GmbH*

P-III.4 RECONSTITUTION OF SOLID RNA FORMULATIONS AND STRUCTURAL CHARACTERIZATION  
*Manuel Reuning, Institute for Particle Technology, TU Braunschweig*

P-III.5 TOWARDS AUTONOMOUS POWDER COMPACTION  
*Ermiya Özasan, Laboratories of Solids Process Engineering, TU Dortmund*

P-III.6 STABILITY OF LIPID NANOPARTICLES EMBEDDED IN HYDROGEL-BASED PELLETS: EFFECTS OF PREPARATION AND DRYING  
*N. Hendricks, Institute of Pharmaceutical Technology and Biopharmaceutics, Center of Pharmaceutical Engineering, TU Braunschweig*

P-III.7 OPTIMIZATION OF POROUS SILICA CARRIER SYSTEMS FOR ENHANCED DRUG RELEASE AND STABILITY  
*Manuel Heck, Institute for Particle Technology, TU Braunschweig*

P-III.8 STEP-WISE DISSOLUTION DSC ANALYSIS AS A TOOL IN THE DEVELOPMENT OF PARTIALLY SOLUBLE API/POLYMER SYSTEMS FOR INDIVIDUALIZED MEDICINE  
*Johannes Lang, Institute for Particle Technology, Center of Pharmaceutical Engineering, TU Braunschweig*

P-III.9 ON THE IMPACT OF ACIDIC IMPURITIES ON LACTOSE CRYSTALLIZATION: DEIONIZATION AS EFFECTIVE PRETREATMENT  
*Silvio Trespi, Institute of Energy and Process Engineering, ETH Zurich*

### P-IV: Semi-Solid & Liquid Dosage Forms

P-IV.1 METHODS FOR STRESS TESTING OF MRNA LIPID NANOPARTICLES FOR LONG-TERM STABILITY ASSESSMENT  
*P. Gottschalk, Institute of Pharmaceutical Technology and Biopharmaceutics, Center of Pharmaceutical Engineering, TU Braunschweig*



- P-IV.2 THE IMPACT OF PEGYLATION ON PASSIVE LOADING OF CURCUMIN IN NANOEMULSIONS  
*Jelena Đoković, Department of pharmaceutical technology and cosmetology, University of Belgrade*
- P-IV.3 CHARACTERIZING ADSORPTION AND INTERACTION OF LIPID NANOPARTICLE SYSTEMS TO THEIR PRIMARY PACKAGING MATERIAL  
*Johanna Reus, Fraunhofer Institute for Surface Engineering and Thin Films – IST Center of Pharmaceutical Engineering, TU Braunschweig*
- P-IV.4 DRYING OF RNA DRUG DELIVERY SYSTEMS TO ENHANCE THEIR STABILITY  
*Daniel Jupke, Institute for Particle Technology, Center of Pharmaceutical Engineering, TU Braunschweig*
- P-IV.5 ESTIMATING THE SURFACE AREA OF SOLID TRIMYRISTIN NANOPARTICLES: IMPLICATION FOR PROTEIN ADSORPTION  
*A. Bagonaid, Institute of Pharmaceutical Technology and Biopharmaceutics, TU Braunschweig*
- P-IV.6 NANOPARTICULATE GAS CARRIERS FOR ADJUSTABLE 3D-PRINTING OF TISSUES AND ORGANS  
*Pauline Breunig, Institute for Particle Technology, TU Braunschweig*
- P-IV.7 INCORPORATING HYDROPHOBIC ION PAIRS OF POLYMYXIN B SULFATE INTO COLLOIDAL EMULSIONS  
*J. Schabbing, Institute of Pharmaceutical Technology and Biopharmaceutics, TU Braunschweig*

## P-V: Digital Models in Pharmaceutical Development

- P-V.1 ENHANCING TRS CALIBRATION EFFICIENCY FOR API QUANTIFICATION BY USING CHEMOMETRIC MODELLING  
*K. Beier, Small Molecule Development Science, AbbVie Deutschland GmbH & Co. KG*
- P-V.2 PREDICTING THE MICROMIXING PERFORMANCE OF A LOW ASPECT RATIO LAMINATION MIXER FOR MICROFLUIDIC NANOPRECIPITATION WITH A DIGITAL TWIN  
*Songtao Cai, Institute of Microtechnology, Center of Pharmaceutical Engineering, TU Braunschweig*
- P-V.3 INVESTIGATING THE EFFECT OF PHYSICOCHEMICAL AND MECHANICAL PROPERTY OF MRNA-LNP DURING SPRAY DRYING VIA CFD-DEM COUPLING  
*Jiqian Guo, Institute for Particle Technology, TU Braunschweig*

## P-VI: API Synthesis

- P-VI.1 ENGINEERING PSEUDOMONAS TAIWANENSIS TOWARDS THE PRODUCTION OF POLYPRENYLATED XANTHONES  
*Hamid A. H. Matari, Institute of Pharmaceutical Biology, TU Braunschweig*
- P-VI.2 OPTIMIZATION, AUTOMATIZATION, AND UPSCALING OF PYRROLONE SYNTHESIS  
*Minhee Lee, Institute of Medicinal and Pharmaceutical Chemistry, Center of Pharmaceutical Engineering, TU Braunschweig*

## P-VII: Microsystems for Pharmaceutical Processing

- P-VII.1 SMARTMEMBRANE: ELECTRICAL SENSOR BRIDGING CELL CULTURE WITH AI  
Victor Krajka, Institute of Microtechnology, Center of Pharmaceutical Engineering,  
TU Braunschweig
- P-VII.2 ENGINEERING EXTRACELLULAR MATRIX MECHANICS IN ORGAN-ON-CHIPS FOR IMPROVED DRUG DISCOVERY AND DEVELOPMENT  
Hazal Kutluk, Institute of Microtechnology, Center of Pharmaceutical Engineering,  
TU Braunschweig
- P-VII.3 CYCLIC MECHANICAL STRAIN MODULATES UPTAKE AND RETENTION OF DNA-FUNCTIONALIZED SWCNTS IN VITRO  
Jonas Finauer, Institute of Microtechnology, TU Braunschweig
- P-VII.4 CHARACTERIZATION OF A NOVEL MURINE BRAIN ENDOTHELIAL CELL LINE FOR IN VITRO MODELLING OF THE BLOOD-BRAIN BARRIER  
Hillary Linda Schulz, Institute of Pharmaceutical Technology and Biopharmaceutics,  
Center of Pharmaceutical Engineering, TU Braunschweig
- P-VII.5 CLEANROOM-FREE FABRICATION OF ULTRATHIN, ULTRAPOROUS MEMBRANES  
J. Bugter Institute of Microtechnology, Center of Pharmaceutical Engineering,  
TU Braunschweig
- P-VII.6 IMPEDANCE FLOW CYTOMETRY FOR THE DETECTION OF ELECTROGENIC MICRO-ORGANISMS  
Mohadeseh Mozafari, Institute of Microtechnology, TU Braunschweig
- P-VII.7 IN-VITRO/IN-VIVO CORRELATION OF A DYNAMIZED TISSUE MODEL OF THE CORNEA IN THE PHARMACOKINETIC TESTING OF OPHTHALMIC DRUGS  
Michelle Düttmann, Institute of Pharmaceutical Technology and Biopharmaceutics, Center  
of Pharmaceutical Engineering, TU Braunschweig
- P-VII.8 DEVELOPMENT OF A SPLIT LUCIFERASE COMPLEMENTATION ASSAY TO INVESTIGATE TIGHT JUNCTION MODULATION  
Antonia Hinze, Institute of Pharmaceutical Technology and Biopharmaceutics,  
TU Braunschweig
- P-VII.9 FUNCTIONALIZATION OF SPIONS FOR APPLICATION AS MPI-TRACEABLE MRNA CARRIERS  
Sandhya Kumar, Institute for Particle Technology, TU Braunschweig
- P-VII.10 MICRO-ELECTRICAL IMPEDANCE TOMOGRAPHY FOR REAL-TIME IMAGING OF BIOLOGICAL SAMPLES  
Chang Liu, Institute of Microtechnology, TU Braunschweig
- P-VII.11 TOWARDS A SPATIOTEMPORAL MAPPING PLATFORM FOR THREE-DIMENSIONAL CELL CULTURES  
Tammy Sue-Wuen Leung, Institute of Microtechnology, TU Braunschweig

# 6th International Symposium on Pharmaceutical Engineering Research – SPhERe

08 – 10 October 2025

## Poster Session Short Talks – Programme

A dedicated poster session is preceded by an introductory presentation. Please note that your presentation time is limited to 2 minutes per poster. The detailed poster programme below lists only the presenting authors and their affiliations.

### WEDNESDAY, 08 OCTOBER 2025

17:15 Short Introduction by Stephan Reichl

#### 17:18 P-I: Analytics, PAT

P-I.1 EXPOSING IPSC-DERIVED BRAIN PERICYTES-LIKE CELLS TO ITACONATE SUPPORTS METABOLIC TREATMENT APPROACH FOR INFLAMMATORY CONDITIONS AND OXIDATIVE STRESS

*Franziska Buck, Institute of Microtechnology, TU Braunschweig*

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*Jana Haegner, Institute of Medicinal and Pharmaceutical Chemistry, TU Braunschweig*

P-I.3 EFFECT OF POLYMERIZATION MECHANISM ON THE PROPERTIES AND PERFORMANCE OF MOLECULARLY IMPRINTED POLYMERS

*Anna Šmídová, Department of Organic Technology, UCT Prague*

#### 17:24 P-II: Scale-Up / Scale-Down Processes

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*Jan-Angelus Meyer, Institute of Biochemical Engineering, TU Braunschweig*

P-II.2 DEVELOPMENT OF AN EXPERIMENTAL SETUP FOR THE QUANTIFICATION OF STICKING AND PICKING DURING TABLETING

*Hasti Ghanadimaragheh, Institute for Particle Technology, Center of Pharmaceutical Engineering, TU Braunschweig*

## 17:28 P-III: Solid Dosage Forms

- P-III.1 CONTINUOUS RING LAYER GRANULATION OF SOLUBLE AND INSOLUBLE CARRIER MATERIALS  
*L. Bahlmann, Institute for Particle Technology, Center for Pharmaceutical Engineering, TU Braunschweig*
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## 17:42 P-IV: Semi-Solid & Liquid Dosage Forms

- P-IV.1 METHODS FOR STRESS TESTING OF MRNA LIPID NANOPARTICLES FOR LONG-TERM STABILITY ASSESSMENT  
*P. Gottschalk, Institute of Pharmaceutical Technology and Biopharmaceutics, Center of Pharmaceutical Engineering, TU Braunschweig*
- P-IV.2 THE IMPACT OF PEGYLATION ON PASSIVE LOADING OF CURCUMIN IN NANOEMULSIONS  
*Jelena Đoković, Department of pharmaceutical technology and cosmetology, University of Belgrade*
- P-IV.3 CHARACTERIZING ADSORPTION AND INTERACTION OF LIPID NANOPARTICLE SYSTEMS TO THEIR PRIMARY PACKAGING MATERIAL  
*Johanna Reus,  
Fraunhofer Institute for Surface Engineering and Thin Films – IST  
Center of Pharmaceutical Engineering, TU Braunschweig*
- P-IV.4 DRYING OF RNA DRUG DELIVERY SYSTEMS TO ENHANCE THEIR STABILITY  
*Daniel Jupke, Institute for Particle Technology, Center of Pharmaceutical Engineering, TU Braunschweig*

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## 17:50 P-V: Digital Models in Pharmaceutical Development

- P-V.1 ENHANCING TRS CALIBRATION EFFICIENCY FOR API QUANTIFICATION BY USING CHEMOMETRIC MODELLING  
*K. Beier, Small Molecule Development Science, AbbVie Deutschland GmbH & Co. KG*
- P-V.2 PREDICTING THE MICROMIXING PERFORMANCE OF A LOW ASPECT RATIO LAMINATION MIXER FOR MICROFLUIDIC NANOPRECIPITATION WITH A DIGITAL TWIN  
*Songtao Cai, Institute of Microtechnology, Center of Pharmaceutical Engineering, TU Braunschweig*
- P-V.3 INVESTIGATING THE EFFECT OF PHYSICOCHEMICAL AND MECHANICAL PROPERTY OF MRNA-LNP DURING SPRAY DRYING VIA CFD-DEM COUPLING  
*Jiqian Guo, Institute for Particle Technology, TU Braunschweig*

## 17:56 P-VI: API Synthesis

- P-VI.1 ENGINEERING PSEUDOMONAS TAIWANENSIS TOWARDS THE PRODUCTION OF POLYPRENYLATED XANTHONES  
*Hamid A. H. Matari, Institute of Pharmaceutical Biology, TU Braunschweig*
- P-VI.2 OPTIMIZATION, AUTOMATIZATION, AND UPSCALING OF PYRROLONE SYNTHESIS  
*Minhee Lee, Institute of Medicinal and Pharmaceutical Chemistry, Center of Pharmaceutical Engineering, TU Braunschweig*

## 18:00 P-VII: Microsystems for Pharmaceutical Processing

- P-VII.1 SMARTMEMBRANE: ELECTRICAL SENSOR BRIDGING CELL CULTURE WITH AI  
*Victor Krajka, Institute of Microtechnology, Center of Pharmaceutical Engineering, TU Braunschweig*
- P-VII.2 ENGINEERING EXTRACELLULAR MATRIX MECHANICS IN ORGAN-ON-CHIPS FOR IMPROVED DRUG DISCOVERY AND DEVELOPMENT  
*Hazal Kutluk, Institute of Microtechnology, Center of Pharmaceutical Engineering, TU Braunschweig*
- P-VII.3 CYCLIC MECHANICAL STRAIN MODULATES UPTAKE AND RETENTION OF DNA-FUNCTIONALIZED SWCNTS IN VITRO  
*Jonas Finauer, Institute of Microtechnology, TU Braunschweig*
- P-VII.4 CHARACTERIZATION OF A NOVEL MURINE BRAIN ENDOTHELIAL CELL LINE FOR IN VITRO MODELLING OF THE BLOOD-BRAIN BARRIER  
*Hillary Linda Schulz, Institute of Pharmaceutical Technology and Biopharmaceutics, Center of Pharmaceutical Engineering, TU Braunschweig*

## 18:10 GET TOGETHER