

Program for the 5th Annual Meeting of the SPP 2364

07. – 08.10.2026

Novotel Freiburg am Konzerthaus
Konrad-Adenauer-Platz 2, 79098 Freiburg im Breisgau

Each project will present a five-minute spotlight of their posters with three to five slides, highlighting new results. Questions are discussed during the following poster session where each subproject presents their poster. Presentations should preferably be given in English by Ph.D. students or postdocs.

Please upload your slides as a PDF to <https://cloud.syscop.de/s/8jTgagsfCxZ4xWR>. (One single PDF per project.)

Please upload your poster as a PDF to <https://cloud.syscop.de/s/cG6kZea8Kei338W>. (One poster per subproject.)

Wednesday, 07.10.2026

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| 12.00–13.00 | Check-in and lunch |
| 13.00–13.30 | Introduction and short review of the fourth year
<i>(Moritz Diehl and Hermann Nirschl)</i> |
| 13.30–13.35 | Autonomous control of a process chain for CO ₂ carbonation by use of mine waste
<i>Mazen Ben Moussa, Pascal Hartmann, Behzad Manesh</i>
<i>PIs: Naim Bajcinca (RPTU Kaiserslautern), Marco Gleiß (KIT), Kai Sundmacher (OVGU Magdeburg)</i> |
| 13.35–13.40 | Model-based process control for transferred arc synthesis of nanoparticles
<i>Danijel Cuturic, Jonah Weidemann</i>
<i>PIs: Steven Xianchun Ding (University of Duisburg–Essen), Frank Einar Kruijs (University of Duisburg–Essen)</i> |
| 13.40–13.45 | Synthesis of highly functional nanoparticles via a sol-gel process using X-ray scattering methods: from process development to process control
<i>Guohui Yang, Tobias Hörter</i>
<i>PIs: Thomas Meurer (KIT), Hermann Nirschl (KIT)</i> |
| 13.45–13.50 | Model-based control of the dynamics during fine grinding in wet-operated stirred media mills
<i>Michel Lahmann, Christoph Thon</i>
<i>PIs: Christian Kirches (TU Braunschweig), Carsten Schilde (TU Braunschweig)</i> |
| 13.50–15.15 | Poster Session I (four groups) |
| 15.15–15.45 | Coffee break |
| 15.45–16.15 | Walk from the hotel to the Aula |
| 16.15–17.30 | Plenary talk at the Aula of the University Freiburg, KG 1, by Richard D. Braatz |
| 18.30 | Dinner: Novotel Freiburg am Konzerthaus |

Thursday, 08.10.2026

9.00–9.05	Welcoming
9.05–9.10	ARCO-CRYSTAL: Adaptive robust predictive control of continuous slug flow cooling crystallization <i>Collin Johnson, N.N.</i> <i>PIs: Sergio Lucia Gil (TU Dortmund), Kerstin Wohlgemuth (HHU Düsseldorf)</i>
9.10–9.15	Adaptive optimal control of continuous aqueous two-phase flotation (ATPF) <i>Ashwin Karichannavar, Katrin Baumgärtner, Kim Lohfink</i> <i>PIs: Moritz Diehl (University of Freiburg), Hermann Nirschl (KIT)</i>
9.15–9.20	Model-based process control for dynamic and efficient operation of liquid/liquid mixer-settler systems <i>Lucas Körner, Jörn Villwock</i> <i>PIs: Steffi Knorn (TU Berlin), Matthias Kraume (TU Berlin)</i>
9.20–9.25	Autonomous structure formation processes in spray fluidized bed agglomeration <i>Jialin Men, Eric Julian Otto, Aisel Ajalova, Lothar Kaps</i> <i>PIs: Andreas Bück (FAU Erlangen–Nürnberg), Achim Kienle (OVGU Magdeburg), Evangelos Tsotsas (OVGU Magdeburg)</i>
9.25–10.30	Poster Session II (four groups)
10.30–10.45	Coffee break
10.45–10.50	Autonomous and self-adapting, high-resolution 3D additive manufacturing by high energy impacts of fine particles <i>Yannik Sinnwell, Anton Maksakov</i> <i>PIs: Sergiy Antonyuk (RPTU), Stefan Palis (TU Clausthal)</i>
10.50–10.55	Model-based quality control in continuous manufacturing of pharmaceutical granules (QC4CM) <i>Stefan Tölle, Nora Wieler, N.N.</i> <i>PIs: Heike Vallery (RWTH Aachen), Stefan Klinken-Uth (HHU Düsseldorf)</i>
10.55–11.00	Formulation of dispersed systems via (melt) emulsification: Process design, in situ diagnostics and regulation <i>Thorben Südhoff, Stefan Buchstaller, Leah Ebner</i> <i>PIs: Knut Graichen (FAU Erlangen–Nürnberg), Franz Huber (FAU Erlangen–Nürnberg), Jochen Schmidt (FAU Erlangen–Nürnberg)</i>
11.00–11.05	Model-based control of spray synthesis of structured granules with specified properties, using transfer functions derived by multivariate stochastic models and machine learning <i>Rahul Mitra, Thomas Wilhelm</i> <i>PIs: Urs Peuker (TU Bergakademie Freiberg), Volker Schmidt (Ulm University)</i>
11.05–12.15	Poster Session III (four groups)
12.15–13.00	Talk by Zoltan K. Nagy: <i>From Crystal to Tablet: AI-Driven Digital Design and Optimization of End-to-End Pharmaceutical Manufacturing</i>
13.00–14.00	Lunch
14.00	Departure of the PIs

Program for the 5th PhD Workshop of the SPP 2364

08. – 09.10.2026

Novotel Freiburg

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Thursday, 08.10.2026

14.00–15.30	Workshop: Digital Design of Chemical Processes using PharmaPy
15.30–16.00	Coffee Break
16.00–17.30	Workshop: Digital Design of Chemical Processes using PharmaPy
	Evening at your leisure

Friday, 09.10.2026

8.30–10.15	Workshop: From Research to Startup – Founding in Germany
10.15–10.30	Coffee break
10.30–12.30	Workshop: From Research to Startup – Founding in Germany
12.30–13.30	Lunch
13.30	Departure

Workshop: Digital Design of Chemical Processes using PharmaPy

Speaker: Zachary Hillman (Purdue University), Zoltan K. Nagy (Purdue University)

Process simulation and digital design have become essential tools for accelerating process development, optimization, scale-up, and manufacturing system design across a wide range of industries. PharmaPy is an open-source, Python-based process modeling and simulation platform originally developed for pharmaceutical manufacturing applications, but its modular, object-oriented architecture makes it readily adaptable to other chemical and process engineering systems. The platform provides a library of interconnected unit-operation models and a flexible framework for developing customized models, enabling the simulation, design, and optimization of individual unit operations as well as integrated process flowsheets. This hands-on workshop will introduce the structure, philosophy, and fundamental capabilities of PharmaPy and guide participants through practical examples demonstrating process modeling, parameter estimation from experimental data, prediction of the effects of operating conditions on process performance and product attributes, and optimization of operating conditions to achieve specified targets. Participants will learn how to instantiate and configure unit operations such as reactors and crystallizers, develop and adapt models for specific applications, connect multiple unit operations into integrated flowsheets, and perform process and techno-economic optimization. Through instructor-guided exercises, participants will gain practical experience with PharmaPy and develop the skills needed to apply the platform to digital process design and optimization, from individual unit operations to integrated end-to-end manufacturing systems across pharmaceutical, chemical, and other process industries.

Workshop: From Research to Startup – Founding in Germany

Speaker: Stefan Rogge (BadenCampus)

The workshop *From Research to Startup – Founding in Germany* covers the following topics

- Founding in Germany: Basics, legal forms, visas, and funding (EXIST)
- Problem–Solution Fit: Tech-push vs. market-pull, finding a real customer problem
- The Business Model: The St. Gallen magic triangle (Who, What, How, Value)
- Pitch deck structure and elevator pitch training