# Program for the 3nd Annual Meeting of the SPP 2364

## 09.-11.10.2024

GenoHotel Karlsruhe

Am Rüppurrer Schloss 40

76199 Karlsruhe

5 minutes oral presentation as a short poster presentation with 3 slides on the topic and new results, discussion for each Ph.D. project only at the poster; Sequence of individual contributions within the project as desired; presentations can preferably be made by Ph.D.s or PostDocs in english.

Please sent each Power Point presentation on the 7th of October to spp2364@mvm.kit.edu

## Wednesday, 09.10.2024

12.00-13.00     Check-in and lunch

13.00-13.30     Introduction and short review of the second year
Hermann Nirschl


## Formulation:

13.30-13.40     Autonomous and self-adapting, high-resolution 3D additive manufacturing by high energy impacts of fine particles

(Yannik Sinnwell, Anton Maksakov)


13.40-13.50     Adaptive data-driven predictive control using behavioral approach for autonomous powder compaction

(Ali Azarbahram, René Brands)


13.50-14.00     Model-based quality control in continuous manufacturing of pharmaceutical granules (QC4CM)

(Stefan Tölle, Stefan Klinken)

| 14.00-14.15 | Formulation of dispersed systems via (melt) emulsification: Process design, in situ diagnostics and regulation |
| | (Thorben Südhoff, Stefan Buchstaller, Leah Ebner) |
| 14.15-14.25 | Model-based control of spray synthesis of structured granules with specified properties, using transfer functions derived by multivariate stochastic models and machine learning |
| | (Rahul Mitra, Niklas Eiermann, Lukas Fuchs) |
| 14.25-15.15 | Poster discussion |
| 15.15-15.25 | Coffee break |

## Particle synthesis:

| 15.30-15.45 | Autonomous control of a process chain for $CO_2$ carbonation by use of mine waste |
| | (Mikhail Kakanov, Volker Bächle, Chinmay Hegde) |
| 15.45-15.55 | Model-based process control for transferred arc synthesis of nanoparticles |
| | (Danijel Cuturic, Jonah Weidemann) |
| 15.55-16.05 | Synthesis of highly functional nanoparticles via a sol-gel process using X-ray scattering methods: from process development to process control |
| | (Guohui Yang, Marcel Kevin Jiokeng Dongmo) |
| 16.05-16.15 | Model-based control of the dynamics during fine grinding in wet-operated stirred media mills |
| | (Michel Lahmann, Christoph Thon) |
| 16.15-16.25 | ARCO-CRYSTAL: Adaptive robust predictive control of continuous slug flow cooling crystallization |
| | (Collin Johnson, Maximilian Kattner) |

| 16.25-17.25 | Poster discussion |
| 17.30-19.00 | Guest lecture: **Prof. Sigurd Skogestad** (online): Control structure selection for recycle processes |
| 19.00 | Dinner |

## Thursday, 10.10.2024

## Particle handling:

| 09.20-09.25 | Optimization of gas-solid fluidized beds operation using machine learning |
| | (Iffat Jamil) |
| 09.25-09.35 | Adaptive optimal control of continuous aqueous two-phase flotation (ATPF) |
| | (Katrin Baumgärtner, Florian Messerer, Kim Lohfink) |
| 09.35-09.45 | Model-based process control for dynamic and efficient operation of liquid/liquid mixer-settler systems |
| | (Chrysoula Bliatsiou, Daniel Topalovic) |
| 09.45-10.00 | Autonomous structure formation processes in spray fluidized bed agglomeration |
| | (Jialin Men, Eric Julian Otto, Aisel Ajalova) |
| 10.00-10.15 | Coffee break |
| 10.15-11.45 | Poster discussion |
| 12.00-13.00 | Lunch |
| 13.00 | Departure of the PIs |