PSSRC

19th Annual Meeting of the Pharmaceutical Solid State Research Cluster

AGENDA - DAY 1

9/24/2025		
CLOSED DAY		
8:30	**Registration and Coffee**	
	Aula	
9:00	**Opening Remarks:** **Mag.a Andrea Höglinger** Vice Rector for Research, Graz University of Technology **Prof. João Pinto** University of Lisbon, President of the PSSRC **Prof. Johannes Khinast** Graz University of Technology, Research Center Pharmaceutical Engineering GmbH	
9:30	**The Future of Solid Dosage Forms – Research Vision for the next 20 years** Jukka Rantanen, University of Copenhagen: **Process analytical technology (PAT): Are we done with the science?** Thomas Rades, University of Copenhagen: **Solid state drugs and dosage forms: Research & development needs for the next 20 years** Clare Strachan, University of Helsinki: **Silent snakes: APIs with solid state behaviour that comes back to bite**	
	Aula	**Lecture Hall V**
10:00	**Advanced Manufacturing**	**Formulation and Biopharmaceutics**
	Chair: Florian Engelsing, Utrecht University	**Chair:** Lotte DeWever, Ghent University
	Enhancing 3D Printing through Progressing Cavity Pump Dosing T. Altenhövel, J. Hoffmann, M. C. Hacker, J. Breitkreutz **Optimizing extrusion-spheronization of high drug-loaded pellets: torque rheometry as a predictive tool for wet granulation** G. Craye, M. Decorte, C. Vervaet, A. Debunne, V. Vanhoorne **In-situ Amorphization of Poorly Soluble Naproxen Using Laser Powder Bed Fusion 3D Printing** F. Engelsing, J. Quodbach	**The role of membrane MWCO and material in dialysis-based dissolution testing of model substances** T. Boralewski, T. Auel, M.C. Hacker, A. Seidlitz **Pullulan Acetate with Tuned Substitution as a Novel Matrix for Colon Drug Delivery: Synthesis, Biodegradability, Compression, Thermal and Drug Release Properties** A. Damiani, W. Dehaen, G. Van den Mooter **Influence of intragranular binder on the downstream processing of a spray dried ASD via roller compaction** L. Luca, F. Van der Gucht, L. De Smet, C. Vervaet, E. De Coninck, V. Vanhoorne
10:45	**Coffee Break**	
	Chair: Wessel Kooijman, Utrecht University	**Chair:** Tom Konings, KU Leuven
11:20	**3D printing of personalized pharmaceutical tablets via pellet-based direct extrusion additive manufacturing** L. De Wever, C. Vervaet, L. Cardon, V. Vanhoorne **Development of a Lipid-containing Formulation with Chewable Consistency for SSE 3D Printing** J. Hoffmann, T. Altenhövel, J. Breitkreutz, M. C. Hacker **The effects of recycling pharmaceutical formulations in Laser powder bed fusion 3D printing – Key to sustainability** W. Kooijman, V.R. Levine, R.J. Kok, J. Lindh, J.H.J. Quodbach **Assessment of Affinisol-Based Filaments for Fused Filament Fabrication of Amorphous Solid Dispersions Aiming for Immediate-Release Tablet** C. Muñoz Martinez , V. Vanhoorne, S. Van Vlierberghe, L. Cardon, A. Paudel, P. Ghiotti, T. Quinten, L. Martinez Marcos, C. Vervaet **From Powder to Tablet: Optimizing Direct Powder Extrusion** P. Šurina, S. Eder, A. Kottlan, I. Raguž, A. Paudel, J. Matić, P. Ghiotti, M. Spoerk **When Granules Meet Fluidisation: Exploring the Impact of Formulation Properties during Continuous Drying** A. Wagner, L. Mareczek, N. Hofmann, C. Riehl, V. Vanhoorne, T. De Beer	**Development of a comprehensive database for tabletability and compressibility analysis** F. Haas, R. Wiedey, M. Bogdahn, S. Klinken-Uth **Patient-tailored doses of carvedilol by tunable modular design** W. He, H. Mu, N. Genina **Investigating the effect of formulation variables on the downstream processability of placebo spray-dried powders** M. Lammens, F. Preda, T. Marcozzi, J. Dhondt, M. Otava,V. Vanhoorne, C. Vervaet **Semi-Solid Extrusion for the Development of Immediate-release Gabapentin Tablets** T. Ribeiro, C. Vervaet, V. Vanhoorne **Impact of Granulation, Tablet Size, Dose and Mass on Critical Quality Attributes of Mini-Tablets** J. Sandström, S. Klinken-Uth, J. Breitkreutz, L. D. Uth **Enabling a supersaturated state of PROTACs in SNEDDS via combination with ASDs** A. L. C. S. Nascimento, L. Stellflug, T. Rades, P. Tajarobi, A. Müllertz
12:50	**Lunch**	
	Chair: Ana Stanojkovic, TU Graz, RCPE GmbH	**Chair:** Van Hai Ngo, KU Leuven
14:00	**Characterisation of 3D printed API-loaded MUPS tablets** L. R. Oldfield, T. Auel, B. Fischer, A. Seidlitz **Digitalization of Continuous Nanomanufacturing: Automated DoE and Real-Time Quality Control in Impingement Jet Mixing** A. Azimi, S. Celikovic, C. Tetyczka, S. Koncar, C. Glader, M. Zettl, Y. Wang, S. Stephan, P. Caisse, M. Spoerk, E. Roblegg, J. Khinast **Solid State Synthesis: Mechanochemical Approaches for Amide Coupling** M. Radl, S. Triebel, W. Braje, J. Ivkovic, J. Matic, S. B. Ötvös, M. Spoerk, H. Gruber-Wölfler **Rheological studies of drug loaded materials for 3D printing** A. Jamett, O. Yanchatuña, E. Dudognon, F. Muschert **Design of powder compaction towards autonomous processing** E. Özaslan, R. Brands, J. Bartsch, M. Thommes	**Advanced Lipid Based 3D printing** C. Alva **Pulmonary Delivery of Poorly Soluble Drugs** T. Baniček, V. Todaro, A. Cavecchi, E. Fröhlich, A. Zimmer, O. Zupančič, S. Salar-Behzadi **Formulation and Characterization of Pediatric Drug Matrices as a Preliminary Step Towards 3D Printing Applications** K. Molina, A. Jamette, E. Dudognon, S. Florin-Muschert **Finding the optimal molar ratio for an unstable co-amorphous system** A. Erol, T. Rades, C. S. Leopold **The VitraCell: A new preclinical in vitro vitreous model** F. Reichel, T. Auel, S. Klinken-Uth, A. Seidlitz
15:15	**Coffee Break**	
15:45		**PAT**
	Chair: Carlota Munoz Martinez, Ghent University	**Chair:** Michael Radl, TU Graz, RCPE GmbH
	Systematic design of continuous planetary roller granulation N. Kubina, M. Thommes, J. Bartsch **A Mechanistic Approach to Understanding Punch Sticking in Direct Compression** I. Wale, J. Robertson, A. B. Singaraju, D. Markl **Encapsulation of liquid bioactive ingredient formulations using coaxial multi-fluid nozzles and the vibrating jet technique** T. Sharifsoltani, A. Pennemann, M. Thommes	**Investigating Film Coating Dissolution Using TPI and OCT** M. Ma, J. A. Zeitler **Sustainable, Automated and Digital NIR PLS Calibration Methods for Blend Homogeneity Prediction** A. Tsioutsios, F. Abbas, J. Goldie, M. Salehian, D. Markl **Characterization of recrystallization behavior of amorphous lactose via multimodal nonlinear microscopy** E. A. Harju, J. Ikonen, N. G. Johansson, T. Tomberg, A. van Rijckeghem, L. Zabihian, L. Wurr, J. Saarinen, B. van Veen, C. J. Strachan
16:30	**Break**	
	Aula	
16:45	**XPS Training**	
	Seminar room	
16:45	**Steering Committee Meeting**	
	Aula	
18:30 - 21:00	**Poster Session & Get Together at the Conference Venue**	

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AGENDA - DAY 2

9/25/2025

CLOSED DAY

8:30 — **Coffee**

9:00

The Future of Solid Dosage Forms – Research Vision for the next 20 years

Anne Juppo, University of Helsinki: **Challenges of Phage Therapy Products**

Joao Pinto, University of Lisbon: **Fabrication of medicines on a crossroad - Mass production versus personalization of medicines**

Jörg Breitkreutz, Heinrich-Heine-University Düsseldorf: **tbd**

9:30

Modeling, Simulation, AI & Industries 5.0	Physicochemical Pharmaceutics
Chair: Goedele Craye, Ghent University	**Chair:** Jiabi Ouyang, KU Leuven
3D Analysis of Shear-Thinning Fluid Flow in Screw Elements of Corotating Twin-Screw Extruders via SPH method A. Stanojković, J. Matić, J. Khinast	**Advanced approaches for structural characterization by elec-trons and synchrotron X-ray radiation** **P. Hans**
Influence of powder properties on CMT performance- a DEM study M. Trogrlic, P. Boehling, D. Jajcevic, P. Doshi, M. Moreno-Benito, J. Pasko, S. Lathorp, D. O. Blackwood, P. Liu, J. Khinast	**The Impact of Plasticizer Leaching from HPMC-PHTHALATE Based Isolated Film on Film Permeability and Thermal Properties** N. Jariwala, S. D. Kerpel, G. V. D. Mooter
Model-Based Design of Experiments to accelerate the formulation of directly-compressed oral solid dosages T. Tait, M. Salehian, M. Aroniada, A. Shier, R. Elkes, J. Robertson, D. Mark	**Tuning the release of sustained release coatings consisting of two insoluble polymers** T. Konings, S. Lauryssen, R. Hoogenboom, G. Van den Mooter
Efficient Calibration Strategies for DEM Simulations of Binary Powder Mixtures G. Fasching, F. Mostafaei, T. Forgber	**Accessing Elusive Metastable and Defective Forms of Osimertinib Using MicroED: A Comprehensive Structural and Energetic Landscape** X. Liang, A. Lanza, A. Larsen, P. Hans, Y. Jiang, I. Martins, T. Rades
On the Validity of Classical Cake Filtration Theory for Filter Presses: A 1D Tangential–Normal Filtration Approach L. Dipilato, G. Krammer, J. Tausendschön	

10:45 — **Coffee Break**

11:15

PAT	Physicochemical Pharmaceutics
Chair: Mingrui Ma, University of Cambridge	**Chair:** Alen Damiani, KU Leuven
Stimulated Raman scattering microscopy for the visualisation of amorphous solid dispersions during dissolution L. Wurr, T. Tomberg, J. Saarinen, L. Peltonen, R. Luxenhofer, T, Rades, B. van Veen, C. Strachan	**Hydration-Induced Structural and Spectral Changes in PVPVA Tablets with Varying Porosity** S. Wang, J.A. Zeitler
Analysis of Residual Moisture Content in Tablets with NIR-SRS and 3D-MRT B. Van Geyt, A. De Man, T.Vandeputte, J.S. Uytterstprot, F. Vandenbroucke, Z. Kelemen, T. De Beer	**Mechanochemical Cocrystallisation in a Simplified Mechanical Model: Decoupling Kinetics and Mechanisms Using THz-TDS** R. Zhang, J. A. Zeitler
Investigating carbamazepine solid-state transitions in the presence of excipients using SRS microscopy A. M. Arbiol Enguita, T. Tomberg, J. Saarinen, C. J. Strachan	**Effect of spray drying parameters on the particle size and flowability of amorphous solid dispersions** S. Ta, E. De Coninck, L. De Smet, C. Vervaet, V. Vanhoorne
Application of Optical Coherence Tomography (OCT) for Offline Monitoring of Minitablet Coating Processes R. Martins Fraga, L.L.D. Uth, M. Beretta, O. Zupančič, V. Herndler, T. Kipping, J. Breitkreutz, M. Spoerk, J. Khinast	**Processing + recrystallisation of co-amorphous form systems** S. Roy, H. Grohganz, T. Rades, E. B. Martin, A. P. Brown
Investigation of the effect of physical powder attributes on fluorescence spectroscopy of low-dose solid pharmaceuticals R. C. U. Helstrup, N. P. A. Christensen, D. H. Sørensen, Å. Rinnan, H. Grohganz	**Unraveling the role of pectin biodegradability and blend composition on the permeability of ethylcellulose-based blend films designed for colon targeting** J. Ouyang, G. Van den Mooter
Terahertz time-domain spectroscopy (THz-TDS) for the monitoring of physical mini-tablet characteristics S. M. Karlsen, M. Anuschek, T. K. Vilhelmsen, J. Rantanen	

12:45 — **Lunch**

OPEN DAY

Aula

Chair: Johannes Khinast, TU Graz, RCPE GmbH

14:00

Keynote Talk:

Niall Macaulay, European Commission - Health Emergency Preparedness and Response Authority (HERA)

Ready for the future: EU preparedness and innovation in pharma

Philippe Tschopp, Glatt Pharmaceutical Services GmbH & Co. KG

Academy & Pharmaceutical Industry – GAP or Opportunity?

Josip Matic, RCPE GmbH

Advances in Pharmaceutical HME modeling: From Process to Product

15:20 — **Coffee Break**

Chair: Josip Matic, RCPE GmbH

16:00

Daniel Treffer, MeltPrep

How to perform thermal analysis in minutes

Martin Spörk, RCPE GmbH

Personalized Medicine at Scale: The Role of Advanced 3D Printing in Pharmaceutical Manufacturing

Aurelien Neveu, Granutools

Understanding the relation between powder permeability and packing fraction to improve tablet manufacturing

18:30 — **Conference Dinner - Mensa Rooftop**

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AGENDA - DAY 3

9/26/2025	
OPEN DAY	
8:30	**Coffee**
	Aula
	Chair: Martin Spörk, RCPE GmbH
9:00	**Johannes Khinast, Graz University of Technology, RCPE GmbH** Digital Tools to Support Development, Scale-up and Process Science: Enhancing Quality, Reducing Costs and Speeding up Time to Market **Amrit Paudel, J&J Innovative Medicine** Enabling solid form & form attribute modelling at the industrial DS/DP optimization scenarios **Stephan Sacher, RCPE GmbH** A digital control concept for end-to-end manufacturings
10:15	**Coffee Break**
	Chair: Stephan Sacher, RCPE GmbH
11:00	**Thomas Brinz, Syntegon Technology GmbH** Accelerating process development and improving efficiency for OSD - a new way of machine learning? **Florian Ries, Abbvie** Developing Spray Drying Processes for Amorphous Solid Dispersions Using Multiphysics Simulations **Stefan Radl, Graz University of Technology** Shape Models for Uncertainty-Calibrated Particle Simulations
12:15	**Lunch**
	Chair: Stefan Radl, TU Graz
13:15	**Luca Emili, InSilicoTrials Technologies (online)** AI for drug development and regulatory approval: opportunities and challenges **Andrea Raffa, Phyllon GmbH** OCT, a window on coating! **Selma Celikovic, RCPE GmbH** A Modern Strategy for Digital Real-Time Release Testing (RTRT) in Continuous Tablet Production
14:30	**Closing Remarks**

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