

# PARTEC 2016

International Congress on Particle Technology

April 19–21, 2016, Nürnberg, Germany



together with:



**POWTECH 2016**

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## Purpose

The lion's share of the products which we encounter in our daily lives are either sold in particulate form – medication, detergents, foodstuffs – or involve particles in their manufacture. We see exciting developments in particulate products every day – in more effective drug formulations, in better “instant” foodstuffs or in smarter electronics. Innovations like these are the focus of attention when particle experts meet in Nürnberg, Germany, every three years. PARTEC has become established as one of the most important international scientific events in particle and powder technology in the last decades.

PARTEC attracts a very wide mix of attendees, from both academia and industry, all meeting together in the same place and surrounded by POWTECH, the world's biggest exhibition of particles-related equipment which reminds the academics what a big and important business this is. Although there are already successful cooperations between industry and science, there is still a significant gap between the scientific and the industrial world. There-

fore PARTEC 2016 not only invites fundamental researchers to present their scientific results and newly developed methods, but also the industry to share their solutions to practical problems and discuss the remaining questions. Together we can accept the huge challenge to jointly find new solutions for products in the fast-growing and innovative market of particle technology. For these reasons the major topic of the next PARTEC in 2016 is “Industry meets Science”.

I would therefore like to invite the academic world and the representatives from the industry to take part in this important event. I look forward to meeting you at PARTEC 2016!

Prof. Dr.-Ing. Hermann Nirschl  
 Institute of Mechanical Process Engineering and Mechanics,  
 Karlsruhe Institute of Technology  
 Chairman of PARTEC 2016

## Scientific Committee

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Schuchmann, H. – Karlsruhe Institute of Technology, Germany

Tomas, J. – OVGU Magdeburg, Germany

# Program overview

Tuesday, April 19, 2016

09:00 Opening

09:10 Friedrich Löffler-Prize in Particle Technology

09:20 **Prof. Dr. T. Alan Hatton, Massachusetts Institute of Technology, USA**  
Stabilization of nanoparticles and nanoemulsions under extreme salinity and high temperature conditions for oil reservoir applications

10:00 Coffee Break

10:30	Modelling and Simulation	Particles in Contact and Processing	Interface Controlled Processes	(Nano)-Structured Materials	Particles from Renewable Materials	Applications of Particle Technology	IPROCUM Conference
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12:10 Lunch Break & Exhibition Visit

14:00 **Prof. Dr.-Ing. Wolfgang Peukert, Friedrich-Alexander University Erlangen-Nürnberg, Germany**  
Particle interfaces – from molecular structure to macroscopic properties

14:40	Modelling and Simulation	Particles in Contact and Processing	Interface Controlled Processes	(Nano)-Structured Materials	Particles from Renewable Materials	Applications of Particle Technology	IPROCUM Conference
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15:40 Coffee Break

16:10	Modelling and Simulation	Particles in Contact and Processing	Particles and Energy	(Nano)-Structured Materials	(Nano)-Structured Materials	Applications of Particle Technology	Modelling and Simulation
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17:30 Poster Presentation Visit

19:00 Get together

Wednesday, April 20, 2016

09:00 Opening & EFCE-MPS Award

09:10 **Dr.-Ing. Karsten Keller, DuPont, USA**  
Particle technology in the new economy

09:50 Coffee Break

10:20	Modelling and Simulation	Particles in Contact and Processing	Interface Controlled Processes	(Nano)-Structured Materials	Pharmaceutical Particles	Applications of Particle Technology	ICHEME's PTSIG – Round Table
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12:20 Lunch Break & Exhibition Visit

14:00 **Prof. Dr.-Ing. Stefan Palzer, Nestle S.A., Switzerland**  
State of the art of particle design in the food industry

14:40	Modelling and Simulation	Particles in Contact and Processing	Life & Food Science	(Nano)-Structured Materials	Pharmaceutical Particles	Applications of Particle Technology	Pharmaceutical Particles
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16:00 Industry Lectures & Exhibition Visit

18:00 POWTECH Exhibition Party

Thursday, April 21, 2016

09:00 Opening

09:10 **Dipl.-Ing. Dierk Wieckhusen, Novartis Pharma AG, Switzerland**  
Particles in the pharmaceutical industry

09:50 Coffee Break

10:20	Modelling and Simulation	Particles in Contact and Processing	Life & Food Science	(Nano)-Structured Materials	Pharmaceutical Particles	Applications of Particle Technology	Modelling and Simulation
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12:20 Lunch Break & Exhibition Visit

14:00 **Prof. Dr. Hans Herrmann, ETH Zurich, Switzerland**  
Particles in turbulent flow

14:40	Modelling and Simulation	Particles in Contact and Processing	Life & Food Science	(Nano)-Structured Materials	(Nano)-Structured Materials	Applications of Particle Technology	Particles in Contact and Processing
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16:00 Closing Ceremony

09:00 **Opening**

09:10 **Friedrich Löffler-Prize in Particle Technology**

**Keynote**

09:20 **Stabilization of Nanoparticles and Nanoemulsions under extreme Salinity and High Temperature Conditions for Oil Reservoir Applications**

Prof. Dr. T. Alan Hatton, Massachusetts Institute of Technology, USA

10:00 **Coffee Break**

	<b>Modelling and Simulation – Capillary Effects/Drying</b>	<b>Particles in Contact and Processing – Piko</b>	<b>Interface Controlled Processes – Particles at interface/coating</b>	<b>(Nano)-Structured Materials – Structuring</b>
10:30	<b>Continuum-mechanical simulation of capillary bridges between nanoscale particles</b> Michael Dörmann, University of Paderborn, Germany	<b>Adhesion moment of spherical particles in gaseous environment – comparison between experiment and simulation</b> Alexander Haarmann, University of Wuppertal, Germany	<b>Two-dimensional arrangement of magnetic nanoparticles</b> Heinz Rehage, TU Dortmund, Germany	<b>Stabilisation of Pt/oxide nanoparticles using a sol-gel-process</b> Jana Ehrhardt, University of Stuttgart, Germany
10:50	<b>Collision behaviour of particles during normal and oblique impact on wet surfaces</b> Britta Crüger, Hamburg University of Technology, Germany	<b>Influence of the plate thickness on the contact time at elastic impact</b> Peter Mueller, Otto-von-Guericke-University Magdeburg, Germany	<b>Selective separation of ultrafine particle systems: chances and drawbacks when using non-polar oil as process aid</b> Tom Leistner, Helmholtz Institute Freiberg for Resource Technology, Germany	<b>Gas phase coating of aerosol nanoparticles with SiO<sub>x</sub> in a DBD plasma at atmospheric pressure</b> Patrick Post, Clausthal University of Technology, Germany
11:10	<b>Discrete element analysis of the shear behaviour of partially wet granular material</b> Haithem Louati, École des Mines d'Albi, France	<b>Micromechanics and Energy Dissipation of Pharmaceutical Particles at Contact</b> Alexander Russell, Otto-von-Guericke-University Magdeburg, Germany	<b>Influence of Surface Structuring on the Adhesion of Wheat Flour and Wheat Dough</b> Richard-Sebastian Moeller, Karlsruhe Institute of Technology, Germany	<b>Hierarchical composite nanostructures via spray-drying</b> Carsten Schilde, Technical University of Braunschweig, Germany
11:30	<b>Pore network simulations of superheated steam drying</b> Kieu Hiep Le, Otto-von-Guericke-University Magdeburg, Germany	<b>A new discrete element contact model to simulate the mechanical behaviour of TiO<sub>2</sub>-nanoparticle films in humid air</b> Jens Laube, University of Bremen, Germany	<b>Surface modification of particles in a fluidized-bed plasma-enhanced CVD process</b> Axel Binder, BASF SE, Germany	<b>On spray drying of uniform mesoporous silica microparticles</b> Cordelia Selomulya, Monash University, Australia
11:50	<b>Modelling and Validation of Spray Drying Process in Pilot-Scale Counter-Current Spray Tower</b> Muzammil Ali, University of Leeds, United Kingdom	<b>Presentation of a New Optical Centrifuge for Particle Adhesion Measurement</b> Johannes Knoll, Karlsruhe Institute of Technology, Germany	<b>Systematic process optimisation of fluid bed coating</b> Andreas van Kampen, University of Hohenheim, Germany	<b>Influence of process conditions on the morphology of Maltodextrin agglomerates investigated by 3D X-ray images</b> Reihaneh Pashminehazar, Otto-von-Guericke-University Magdeburg, Germany

12:10 **Lunch Break & Exhibition Visit**

**Keynote**

14:00 **Particle interfaces – from molecular structure to macroscopic properties**

Prof. Dr.-Ing. Wolfgang Peukert, Friedrich-Alexander University Erlangen-Nürnberg, Germany

	<b>Modelling and Simulation – Grinding</b>	<b>Particles in Contact and Processing – Piko</b>	<b>Interface Controlled Processes – Powder technologies for additive manufacturing and 3D printing</b>	<b>(Nano)-Structured Materials – Material Properties 1</b>
14:40	<b>DEM simulation of aggregate crushing</b> Riccardo Artoni, IFSTTAR, France	<b>Rolling, sliding and torsion of micron-sized silica particles: experimental, numerical and theoretical analysis</b> Thomas Weinhart, University of Twente, Netherlands	<b>Laser Sintered Part Surface Simulation of Topography and optimized Alignment</b> Patrick Delfs, University of Paderborn, Germany	<b>Characterization of silver nanoparticle-coated textiles for antibacterial applications</b> Xiaoai Guo, Karlsruhe Institute of Technology, Germany
15:00	<b>Predicting Milling Performance of Roller Compacted Ribbons by DEM</b> Colin Hare, University of Leeds, United Kingdom	<b>Investigation of contact forces between oxidic surfaces as a function of adsorbate chemistry and temperature under UHV conditions</b> Bastian Mosebach, University of Paderborn, Germany	<b>A process route for the production of filled polymer particles for additive manufacturing</b> Marius Sachs, Friedrich-Alexander University Erlangen-Nürnberg, Germany	<b>Simultaneous Analysis of Hydrodynamic and Optical Properties Using Multi-wavelength Analytical Ultracentrifugation</b> Johannes Walter, Friedrich-Alexander University Erlangen-Nürnberg, Germany

Particles from Renewable Materials	Applications of Particle Technology – Bulk Properties and functional particles	IPROCUM Conference – In silico process modeling for roll compaction
<b>Industrial Product Design of Disperse Systems</b> Jens Uhlemann, Bayer Technology Services GmbH, Germany	<b>Superparamagnetic micro-particles with functional surfaces for substance targeting in water treatment</b> Michael Schneider, Fraunhofer Institute for Silicate Research ISC, Germany	<b>A combined DEM &amp; FEM modelling of powder flow and compaction during roll pressing</b> Luca Orefice, Graz University of Technology, Austria Alon Mazor, École des Mines d'Albi, France
<b>Recycling of Silicon via atomization for Photovoltaics Supply Chain application</b> Valdiney Domingos, Viridis.iQ GMBH, Germany	<b>General Framework to Predict Segregation Behavior in Multi-component and Multi-Mechanism Materials</b> Kerry Johanson, Material Flow Solutions Inc, USA	<b>Machine learning tools for modelling of powder mixing</b> Varun Kumar Ojha, Technical University of Ostrava, Czech Republic Serena Schiano, University of Surrey, United Kingdom
<b>Comparative method of investigating the resistance of biomass pellets degradation through repeated impact</b> Murtala Muhammad Abdulummini, University of Greenwich, United Kingdom	<b>How to improve classical flowability tests to meet current requirements of industries</b> Geoffroy Lumay, University of Liège, Belgium	<b>Roll Compaction: The impact of system design and Scale up</b> Kitti Csordas, Ana Pérez Gago, both Heinrich-Heine-University Düsseldorf, Germany
<b>Investigation of segregated fines during the filling operation of biomass materials in large scale</b> Lahiru Lakshan Lulbadda Waduge, University of Greenwich, United Kingdom	<b>The role of inorganic salts on the structure and functional properties of detergent powders</b> Amin Farshchi, University of Leeds, United Kingdom	<b>Feature selection techniques for Roll Compaction</b> Hossam Zawbaa, Babes-Bolyai University, Romania Lucía Pérez Gandarillas, École des Mines d'Albi, France Serena Schiano, University of Surrey, United Kingdom
<b>Properties and quality system for granular biomass</b> Mateusz Stasiak, Institute of Agrophysics Polish Academy of Sciences, Poland	<b>Multifunctional nano-particles for targeted theranostics</b> Fabian Starsich, ETH Zurich, Switzerland	<b>Multiscale modelling of ribbon Milling: a DEM-PBM framework</b> Simone Loreti, University of Surrey, United Kingdom Andreja Mirtič, AstraZeneca, United Kingdom

Particles from Renewable Materials	Applications of Particle Technology – Separation Processes	IPROCUM Conference – In silico process modeling for roll compaction
<b>Single biofuel pellet durability characterization with predictive ability for standard bulk method results</b> Sylvia Larsson, Swedish University of Agricultural Sciences, Sweden	<b>Highly Efficient Filtration of Ultrafine Dust Emitted by Biomass Combustions With Baghouse Filter Using Precoat Material</b> Sascha Schiller, University of Paderborn, Germany	<b>The impact of roll compaction process on die filling and die compaction</b> Lucía Pérez Gandarillas, École des Mines d'Albi, France Serena Schiano, University of Surrey, United Kingdom
<b>Chitosan based nano-particles for adsorption of micropollutants</b> Benjamin Riegger, University of Stuttgart, Germany	<b>Separation characteristics of a deflector wheel classification during stationary conditions</b> Christian Spötter, Clausthal University of Technology, Germany	<b>DEM modelling of powder flow &amp; powder-filling during die compaction</b> Raphael Schubert, Fraunhofer Institute for Mechanics of Materials IWM, Germany Zilin Yan, Johnson Matthey Plc, United Kingdom

	Modelling and Simulation – Grinding	Particles in Contact and Processing – Piko	Interface Controlled Processes – Powder technologies for additive manufacturing and 3D printing	(Nano)-Structured Materials – Material Properties 1
15:20	<b>Analysis of Fluid-Particle-Wall Interactions in a Spiral Jet Mill</b> Selasi Dogbe, University of Leeds, United Kingdom	<b>Sintering of polymer particle – Experiments and modelling of temperature- and time-dependent contacts</b> Regina Fuchs, Max Planck Institute for Polymer Research, Germany	<b>Production of polymer particles by melt emulsification for additive manufacturing processes</b> Stephanie Fanselow, Friedrich-Alexander University Erlangen-Nürnberg, Germany	<b>Impact of optical property on the photocatalytic activity of aggregates</b> Hoai Nga Le, Dresden University of Technology, Germany
15:40	<b>Coffee Break</b>			
	Modelling and Simulation – Fluidized Beds	Particles in Contact and Processing – Piko – Capillary Forces	Particles and Energy	(Nano)-Structured Materials – Material Properties 2
16:10	<b>Process control of continuous fluidized bed layering with internal product classification by MPC</b> Andreas Bück, Otto-von-Guericke-University Magdeburg, Germany	<b>Adhesive forces on rough hydrophobic surfaces – Modelling of force distributions</b> Jörg Fitzsche, Freiberg University of Technology, Germany	<b>Influence of three-dimensional electrode microstructure on the performance of lithium-ion batteries</b> Michael Kespe, Karlsruhe Institute of Technology, Germany	<b>Automated synthesis of CdSe quantum dot nanocrystals for reproducibility studies and unique insights to process-structure</b> Ahmed Mahmoud Salaheldin, Friedrich-Alexander University Erlangen-Nürnberg, Germany
16:30	<b>CFD simulation of the hydrodynamics of fluidized beds operated under reduced pressure</b> Sayali Zarekar, Otto-von-Guericke-University Magdeburg, Germany	<b>Development of new Analysis Methods for the Characterization and Classification of Wet Sticky Ores</b> Jens Plinke, University of Newcastle, Australia	<b>The role of Power Technology in Thermal energy storage – a challenge across tens of orders of magnitude</b> Yulong Ding, University of Birmingham, United Kingdom	<b>The effects of chemical components distribution and particle structure on dissolution kinetics</b> Patricia Andreu, University of Birmingham, United Kingdom
16:50	<b>Investigation of heat transfer in packed/fluidized beds resolved by an implicit 3D finite difference approach</b> Tobias Oschmann, Ruhr University Bochum, Germany	<b>Simultaneous measurement of capillary force and shape of the capillary bridges between a particle and a liquid film</b> Frank Schellenberger, Max Planck Institute for Polymer Research, Germany	<b>DEM Simulation of Lithium-ion battery electrodes with tailored active material particle size</b> Clara Sangrós, Technical University of Braunschweig, Germany	<b>Characterization and prediction of random structured granules: structure measures and property functions</b> Julia Harnacke, University of Hohenheim, Germany
17:10	<b>Multiscale simulation of the fluidized bed granulation in a Wurster coater apparatus</b> Maksym Dosta, Hamburg University of Technology, Germany	<b>Wet granular matter under shear</b> Laurent Gilson, Max Planck Institute for Polymer Research, Germany	<b>The recycling of Li-ion batteries from electric vehicles – methodological approaches of Mechanical Engineering</b> Lutz Wuschke, Technical University Bergakademie Freiberg, Germany	<b>High-Speed Dynamic Image Analysis for Food and Fibre Applications</b> Wolfgang Witt, Sympatec GmbH, Germany
17:30	<b>Poster Presentation Visit</b>			
19:00	<b>Get together</b> In a relaxed atmosphere with pretzels and beer all participants can discuss the topics of the first conference day and establish new contacts. The Get together is included in the delegate fee.			

## Supporting Organisations



International Association for Pharmaceutical Technology (APV), Germany



Deutsche Keramische Gesellschaft (DKG), Germany



The Chinese Academy of Sciences (CAS), China



Deutscher Schüttgut-Industrie Verband (DSIV), Germany



German Association of Biotechnology Industries (DIB), Germany



The Research Association of the German Food Industry (FEI), Germany



Nano in Germany, Germany



Association for Aerosol Research (GAef), Germany

<b>Particles from Renewable Materials</b>	<b>Applications of Particle Technology – Separation Processes</b>	<b>IPROCOT Conference – In silico process modeling for roll compaction</b>
<b>Processing and investigation of carbohydrate-based polymers for the encapsulation by spray-drying</b> Michael Walz, University of Stuttgart, Germany	<b>Determination of surface properties and dispersibility of NPs by means of sedimentation analysis</b> Sebastian Süß, Friedrich-Alexander University Erlangen-Nürnberg, Germany	<b>CI for solid dosage forms: modeling milling and die compaction processes</b> Hassan Khalid, Pezhman Kazemi, both Jagiellonian University, Poland
<b>(Nano)-Structured Materials – Measuring Technology</b>	<b>Applications of Particle Technology – High Temperature Processes</b>	<b>Modelling and Simulation</b>
<b>Analytical Centrifugation and Direct Boundary Modelling as a Next Generation Tool for Accurate Particle Size Analysis</b> Johannes Walter, Friedrich-Alexander University Erlangen-Nürnberg, Germany	<b>Oxide particles production by low-voltage/low-current cathode plasma electrolysis</b> Alexander Gromov, Nuremberg Institute of Technology Georg Simon Ohm, Germany	<b>A hard-sphere model for DEM-simulations</b> Boris Balakin, University of Bergen, Norway
<b>New insight into concentrated micro- and nanodispersions by X-ray concentration profiling</b> Dietmar Lerche, LUM GmbH, Germany	<b>APPTec – a new generation of spray pyrolysis technology</b> Lars Leidolph, Glatt Ingenieurtechnik GmbH, Germany	<b>Effect of Particle Shape on Bulk Particle Motion in Discrete Element Simulations</b> Mehrdad Pasha, University of Leeds, United Kingdom
<b>Continuous synthesis and in situ SAXS analysis of nanoparticles in liquid phase</b> Manuel Meier, Karlsruhe Institute of Technology, Germany	<b>Plasma Compatibility of Particles for Functional PVD-coatings by ex-situ Injection</b> Uwe Beck, BAM Federal Institute for Materials Research and Testing, Germany	<b>Simulation of Impact Breakage of Weak Agglomerates by Distinct Element Method</b> Tina Bonakdar, University of Leeds, United Kingdom
<b>Photon Cross-Correlation Spectroscopy for on-line Particle Size Analysis</b> Helmut Geers, Sympatec GmbH, Germany	<b>Antibacterial and photocatalytic activity of nano-coatings generated by Liquid Flame Spray</b> Janne Haapanen, Tampere University of Technology, Finland	<b>Mechanistic Modeling of Capsule Filling Processes</b> Peter Loidolt, Graz University of Technology, Austria



VDI Society Chemical and Process Engineering (VDI-GVC), Germany



AIChE's Particle Technology Forum (AIChE's PTF), USA



ProcessNet – eine Initiative von DECHEMA und VDI-GVC, Germany



ICHEME's Particle Technology Special Interest Group (PTSIG), United Kingdom

09:00 **Opening & EFCE-MPS Award**

**Keynote**

09:10 **Particle technology in the new economy**  
Dr.-Ing. Karsten Keller, DuPont, USA

09:50 **Coffee Break**

	Modelling and Simulation – Agglomeration/Mixing	Particles in Contact and Processing – DynSym	Interface Controlled Processes – Characterization	(Nano)-Structured Materials – Nanoparticles
10:20	<b>Stability of brittle agglomerates in agitated gaseous environment</b> Tobias Wollborn, IWT – Foundation Institute of Materials Science, Germany	<b>Improvement of the computational efficiency of a dynamic flowsheet simulation system for solids processes</b> Vasyl Skorych, Hamburg University of Technology, Germany	<b>Shedding Light on Hidden Particle Interfaces with Nonlinear Optical Light Scattering</b> Björn Braunschweig, Friedrich-Alexander University Erlangen-Nürnberg, Germany	<b>Tailored nanoparticles by wet chemical particle technology: from lab to pilot scale</b> Karl Mandel, Fraunhofer Institute for Silicate Research ISC, Germany
10:40	<b>Microstructural effects in breakage behavior of real and virtual maltodextrin agglomerates under compressive load</b> Aaron Spetl, Ulm University, Germany	<b>Applicability of phenomenological screening models in representing dynamic processes during DEM screening simulations</b> Frederik Elskamp, Ruhr University Bochum, Germany	<b>Capillary Forces during Imbibition into Highly Porous Nanoparticle Layers</b> Sven O. Schopf, University of Bremen, Germany	<b>Nanoparticle Polymer Composites by Laser Ablation in Liquids</b> Bilal Gökce, University of Duisburg-Essen, Germany
11:00	<b>Effect of roll compactor sealing system designs: A Finite Elements Analysis</b> Alon Mazor, École des Mines d'Albi, France	<b>Optimization of particle ripening processes by numerical methods</b> Michael Haderlein, Friedrich-Alexander University Erlangen-Nürnberg, Germany	<b>Surface Energy Heterogeneities and Hydrophobic Interactions – New Insights to understand Flotation</b> Martin Rudolph, Helmholtz-Zentrum Dresden-Rossendorf, Germany	<b>Synthesis of nano structural Cr3C2 powders from water soluble precursors</b> Juha Lagerbom, VTT Technical Research Centre of Finland, Finland
11:20	<b>Discontinuous Mixing Processes of Different Sized Particles and Individual Liquid Quantities</b> Steffen Schmelzle, Karlsruhe Institute for Technology, Germany	<b>Analysis and modeling of the dynamic process behavior of fluidized bed opposed jet mills</b> Benedikt Köninger, Friedrich-Alexander University Erlangen-Nürnberg, Germany	<b>En route to knowledge-based design of particle surfaces via resolving ligand adsorption in colloids on a molecular level</b> Wei Lin, Friedrich-Alexander University Erlangen-Nürnberg, Germany	<b>Manufacturing nano-structured particles by atomic layer deposition</b> Ruud van Ommen, Delft University of Technology, Netherlands
11:40	<b>Numerical analysis of segregation of powder mixtures</b> Mohammadreza Alizadeh Behjani, University of Leeds, United Kingdom	<b>Simulation and validation of turbulent flows in zigzag air classifiers</b> Eduard Lukas, Otto-von-Guericke-University Magdeburg, Germany	<b>Dispersion and time dependent gelation processes of fine ceramic powder aqueous suspension by using poly-isobutylene-alt</b> Hidehiro Kamiya, Tokyo University of Agriculture and Technology, Japan	<b>Highly active Pd/TiO2 photocatalyst under solar light</b> Kakeru Fujiwara, ETH Zurich, Switzerland
12:00	<b>Detailed DEM Modeling of Industrial-scale Tablet Coating Processes</b> Charles Radeke, Particle Simulation Technology Group, Germany	<b>Influence of Solid Fuel Particle Characteristics on Flowsheet Modelling of Chemical Looping Combustion</b> Johannes Haus, Hamburg University of Technology, Germany	<b>Effect of Film Thickness and Environmental Conditions on Mechanical Properties of Different Polymers</b> Umair Zafar, University of Leeds, United Kingdom	<b>An engineering approach for customized metal oxide nanoparticles via the non-aqueous sol-gel method</b> Pierre Stolzenburg, Technical University of Braunschweig, Germany

12:20 **Lunch Break & Exhibition Visit**

**Keynote**

14:00 **State of the art of particle design in the food industry**  
Prof. Dr.-Ing. Stefan Palzer, Nestle S.A., Switzerland

	Modelling and Simulation – Flowability/Nanoparticles	Particles in Contact and Processing – DynSym	Life & Food Science – Emulsions	(Nano)-Structured Materials – Materials 1
14:40	<b>Flowability Assessment of Weakly Consolidated Powders</b> Alexandros-Georgios Stavrou, University of Leeds, United Kingdom	<b>Control of Multi-Chamber Continuous Fluidized Bed Spray Granulation</b> Stefan Palis, Otto-von-Guericke-University Magdeburg, Germany	<b>Formation, stabilization and characterization of emulsions with a crystalline disperse phase</b> Serghei Abramov, Karlsruhe Institute of Technology, Germany	<b>Jet Milling of Active Pharmaceutical Ingredients and Excipients</b> Selasi Dogbe, University of Leeds, United Kingdom



Pharmaceutical Particles – Solid dosage Forms	Applications of Particle Technology	IChemE's PTSIG – Round Table
<b>Understanding Pharmaceutical Dry Powder Blending Using the Iron Oxide Tracer Method</b> Kahlil Desai, Monash University, Australia	<b>A multi-method approach to quality control illustrated on the industrial powder coating process</b> Elke Riedl, Anton Paar GmbH, Austria	<p><b>Do we really progress in particle technology challenges?</b>  <b>“Fostering the link between academia and industry in particulate science”</b></p> <p>Round Table and open discussion organized by Pablo García-Triñanes, University of Surrey, United Kingdom</p>
<b>Wet agglomeration of crystalline sugars</b> Andrea Santomaso, University of Padova, Italy	<b>FEM analysis of gas flow in rolling process of porous material</b> Abderrahim Michrafy, École des Mines d'Albi, France	
<b>Compaction behavior of pharmaceutical excipients and active pharmaceutical ingredients</b> Isabell Krautstrunk, Technical University of Braunschweig, Germany	<b>Milling of Amorphous and Crystalline Silica in a Single Ball Mill</b> Siwarote Siriluck, University of Leeds, United Kingdom	
<b>Comminutive pelletizing in hot-melt pharma extrusion processes</b> Stefan Deiss, Automatik Plastics Machinery GmbH, Germany	<b>Evaluation, scale-up and transfer of fluidized bed jet milling technology</b> Michael Juhnke, Novartis Pharma AG, Switzerland	
<b>Continuous Manufacturing of Solid Dosage Forms: Development of a Novel Processing Line</b> Stephan Sacher, Research Center Pharmaceutical Engineering GmbH, Austria	<b>New approaches towards production and functionalization of polymer powders for selective laser beam melting of polymers</b> Jochen Schmidt, Friedrich-Alexander University Erlangen-Nürnberg, Germany	
<b>Impact breakage of pharmaceutical tablets</b> Colin Hare, University of Leeds, United Kingdom	<b>Graduation of highly loaded CNT and ceramic composites</b> Carsten Schilde, Technical University of Braunschweig, Germany	

Pharmaceutical Particles – Films & Particles	Applications of Particle Technology – Novel Particle Processes	Pharmaceutical Particles – Particle Processing
<b>Optical Coherence Tomography for the Characterization of Pharmaceutical Film Coatings</b> Daniel Markl, Research Center Pharmaceutical Engineering GmbH, Austria	<b>Radioactive labelling of nanoparticles and their subsequent transfer into motor oil for engine tests</b> Sandra Jendrzey, University of Duisburg-Essen, Germany	<b>Manufacturing of Pharmaceuticals Pellets by Spherulization – Investigation of Particle Kinematics by PIV</b> Dennis Thäte, TU Dortmund, Germany

# Wednesday, April 20, 2016

	Modelling and Simulation – Flowability/Nanoparticles	Particles in Contact and Processing – DynSym	Life & Food Science – Emulsions	(Nano)-Structured Materials – Materials 1
15:00	<b>Impact of Interparticulate Forces on the Viscosity of Nanoparticulate Resin Suspensions</b> Benedikt Finke, Technical University of Braunschweig, Germany	<b>Characterisation of Dustiness – Influence of deposit thickness</b> Tim Londershausen, University of Wuppertal, Germany	<b>Interaction of ions and food surfactants: implication on multiple emulsion shelf life</b> Susanne Neumann, Karlsruhe Institute of Technology, Germany	<b>Improving mechanical surface properties of thin coatings by using modified nanoparticles</b> Jutta Hesselbach, Technical University of Braunschweig, Germany
15:20	<b>Mechanical Properties of Nanoparticle Layers by DEM Simulations with Coarse Grained Potential</b> Valentin Baric, University of Bremen, Germany	<b>Determining the Full Geometric Complexity of Crystal Aggregates via Monte Carlo Simulation</b> Tijana Kovacevic, Technical University of Munich, Germany	<b>Creating particulate emulsifiers from food waste</b> Joanne Gould, University of Nottingham, United Kingdom	<b>Fine droplets for the preparation of spray dried submicron particles</b> Ramona Gorny, TU Dortmund, Germany
15:40	<b>Simulation and validation of binary aerosol droplet formation</b> Xinze Zhen, University of Paderborn, Germany	<b>Analysis of growth kinetics of a multivariate crystal population in a continous crystallizer</b> Viktoria Wiedmeyer, Otto-von-Guericke-University Magdeburg, Germany	<b>Characterisation of nanoparticles and nano-structured materials in cosmetic formulations and food products</b> Rodrigo Renato Retamal Marin, Dresden University of Technology, Germany	<b>Characterisation challenges for nanoparticles in complex matrices</b> Åsa Jämting, National Measurement Institute Australia, Australia
16:00	<b>Industry Lectures &amp; Exhibition Visit</b>			
18:00	<b>POWTECH Exhibition Party</b> PARTEC is held concurrently with POWTECH, the world's leading trade fair for the processing, analysis and handling of powder and bulk solids. A social highlight of the exhibition will be the Exhibition Party. PARTEC delegates, speakers and sponsors can take part at this evening event. Please register for the exhibition party (30 Euro) with the application form on the backside of this brochure. The Party will take place in the Nürnberg Convention Center.			



**Pharmaceutical Particles – Films & Particles**

**Evaluation Studies of a Sensing Technique for Electrostatic Charge Polarity of Pharmaceutical Particulates**

Tariq Hussain, University of Greenwich, United Kingdom

**Loading nanoparticulate suspensions on drug-free orodispersible films**

Denise Steiner, Technical University of Braunschweig, Germany

**Concomitant Polymorphism of Curcumin**

Sameer Dalvi, Indian Institute of Technology Gandhinagar, India

**Applications of Particle Technology – Novel Particle Processes**

**Thermal properties of polyamide 12 powder for application in laser sintering**

Stefan Josupeit, University of Paderborn, Germany

**Inkjet Printing of Pharmaceutical Nanoparticles**

Heinz Pichler, Research Center Pharmaceutical Engineering GmbH, Austria

**European standardization project on detection and identification of nano-objects in complex matrices**

Michael Stintz, Dresden University of Technology, Germany

**Pharmaceutical Particles – Particle Processing**

**Predicting Stress-Induced Transformations and Attrition in Filter Bed Drying of Pharmaceutical Powders**

Wei Pin Goh, University of Leeds, United Kingdom

**Purification of Proteins via Continuous Crystallization in a Tubular Crystallizer**

Johannes Khinast, Graz University of Technology, Austria

**Agglomeration with Polydisperse Primary Particles in the Free Molecular Regime**

Eirini Goudeli, ETH Zurich, Switzerland



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**NÜRNBERG MESSE**

09:00 **Opening**

**Keynote**

09:10 **Particles in the pharmaceutical industry**  
Dipl.-Ing. Dierk Wieckhusen, Novartis Pharma AG, Switzerland

09:50 **Coffee Break**

	Modelling and Simulation – New Methods	Particles in Contact and Processing – Characterisation	Life & Food Science – Particle Influence Properties	(Nano)-Structured Materials – Materials 2
10:20	<b>Discrete and finite element co-simulations</b> Claas Bierwisch, Fraunhofer Institute for Mechanics of Materials IWM, Germany	<b>Challenges in developing dispersion procedures for nanoparticles in large scale scientific projects</b> Katrín Loeschner, Technical University of Denmark, Denmark	<b>Particles prevent pellets: microparticle enhanced cultivation (MPEC) of filamentous microorganisms</b> Dirk Holtmann, DECHEMA-Forschungsinstitut, Germany	<b>Production and Application of Nanoparticles from Spark Ablation</b> Andreas Schmidt-Ott, Delft University of Technology, Netherlands
10:40	<b>Modelling Carrier Particle Wall Collisions for Predicting Drug Detachment Efficiency inside Dry Powder Inhalers</b> Yan Cui, Martin Luther University Halle-Wittenberg, Germany	<b>Understanding dispersion and dissolution of powders in liquids</b> Gabriel Meesters, DSM Biotech Center, Netherlands	<b>Utilization of Model Particles as Contaminations for the Cleaning of Filter Media in the Food Industry</b> Roman Werner, Technical University of Munich, Germany	<b>Flame spray pyrolysis of catalytic nanoparticles for water treatment</b> Anna Lähde, University of Eastern Finland, Finland
11:00	<b>The Development of a Multivariate Model for Predicting the Performance of Powder Feeders</b> Tim Freeman, Freeman Technology, United Kingdom	<b>Study of water adsorption and capillary formation for nanoparticle layers via combined in situ FT-IR an QCM-D setup</b> Boray Torun, University of Paderborn, Germany	<b>Influence of particle properties of beer <math>\beta</math>-glucans and arabinoxylans and their effects on the membrane filtration</b> Michael Kupetz, Technical University of Munich, Germany	<b>Particle based functional materials from the gas phase</b> Martin Seipenbusch, University of Stuttgart, Germany
11:20	<b>Particle simulations, calibration, validation and application</b> Stefan Luding, University of Twente, Netherlands	<b>Dust release from mechanically vibrated beds of cohesive powders</b> Hamid Salehi Kahrizsangi, University of Salerno, Italy	<b>Effect of particle shape and size on thermal condition within a packed-bed bioreactor of solid-state fermentation</b> Fernanda Casciatori, UFSCar – Federal University of São Carlos, Brazil	<b>Continuous flow synthesis of surface conformal nanostructured coatings on spherical particles and mesoporous supports</b> Robin Klupp Taylor, Friedrich-Alexander University Erlangen-Nürnberg, Germany
11:40	<b>Modeling the dynamic interplay of particle-alveolar cell (macrophages) interactions</b> Vasiliki Tsikourkitoudi, Kingston University London, United Kingdom	<b>Comparative examination of the separating characteristics of different crystalline amino acid systems</b> Lisa Löbnitz, Karlsruhe Institute of Technology, Germany	<b>Impact of polymer protein interactions on the quality of microrheological measurements – a tracer particle screening</b> Marie-Therese Schermeyer, Karlsruhe Institute of Technology, Germany	<b>Magnetic nanocomposite materials</b> Patrick Degen, TU Dortmund, Germany
12:00	<b>Validating Settling Suspensions Numerical Data through MRI, UPV and EIT measurements</b> Maria Rasteiro, University of Coimbra, Portugal	<b>Influence of Solids Loading Ratio on Particle Attrition within a New Centrifugal Accelerator Impact Tester</b> Robert Berry, University of Greenwich, United Kingdom	<b>Application of Platinum Nanoparticles for Nuclear Medicine Diagnostics: Isolation of Highly Concentrated <math>^{123}\text{I}</math></b> Sandra Jendrzzej, University of Duisburg-Essen, Germany	<b>Practical aspects of transforming particle size distributions with respect to equivalent diameter and quantity</b> Frank Babick, Dresden University of Technology, Germany

12:20 **Lunch Break & Exhibition Visit**

**Keynote**

14:00 **Particles in turbulent flow**  
Prof. Dr. Hans Herrmann, ETH Zurich, Switzerland

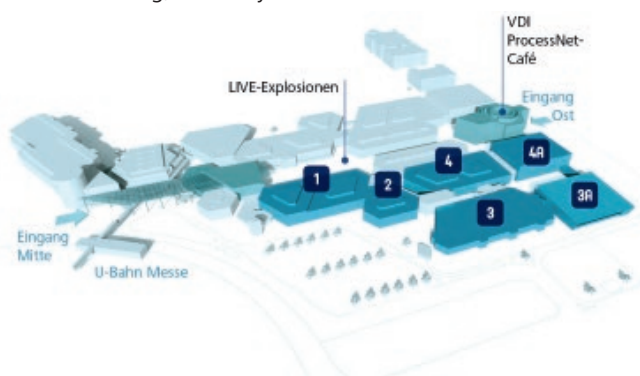
	Modelling and Simulation – New Methods	Particles in Contact and Processing	Life & Food Science – Target Part Properties	(Nano)-Structured Materials – MpaC
14:40	<b>Numerical Simulation of Magnetic Particle Separation</b> Marie-Luise Maier, Karlsruhe Institute of Technology, Germany	<b>Microstructural changes, particle tracking and shear localization of fine glass powders</b> Lisa Handl, Ulm University, Germany	<b>Protein hydrogel microparticles as precursor for supercritically dried aerogels to encapsulate sensitive substances</b> Christian Kleemann, Technical University of Munich, Germany	<b>Research cluster MPaC – multi-parameter on-line characterization of nanostructured particle systems</b> Rainer Friehmelt, BASF SE, Germany

Pharmaceutical Particles – Particulates	Applications of Particle Technology – Measurement of particle properties	Modelling and Simulation – Solids Handling
<b>Dissolution rate of pharmaceutical API applying particle size analysis by LLD and comparison to conventional methods</b> Edgar John, Novartis Pharma AG, Switzerland	<b>Investigation of the microstructure of single particles using <math>\mu</math>-computed tomography and confocal microscopy</b> Franziska Sondej, Otto-von-Guericke-University Magdeburg, Germany	<b>Size segregation modeling of powder mixtures in mass and funnel flow silos</b> Silvia Volpato, University of Padova, Italy
<b>In-line and off-line particle size measurement of model drug pellet fluidized bed coating</b> Dimitri Wiegel, Anhalt University of Applied Sciences, Germany	<b>Particle Size Analysis – Investigating Measurement Uncertainties in the Development of a Robust Validation Procedure</b> Graham Rideal, Whitehouse Scientific Ltd., United Kingdom	<b>Virtual characterization of dense granular flow through a vertically rotating feeding experiment</b> Sebastian Rau, Fraunhofer Institute for Industrial Mathematics ITWM, Germany
<b>Aerosolized Delivery of Dry Powder Formulation of Voriconazole for the Treatment of Invasive Pulmonary Aspergillosis</b> Sumit Arora, National Institute of pharmaceutical education and research (NIPER), S.A.S NAGAR, India	<b>Automated Validation of Aerosol Generators</b> Jan Müller, Topas GmbH, Germany	<b>Analysis of the die filling stage during the ceramic tile pressing process via discrete element method (DEM)</b> Juan Miguel Tiscar Cervera, ITC-AICE, Spain
<b>A Novel Method for the Production of Pharmaceutical Particles Using High Pressure Micro-nization</b> Ulrich Bröckel, Trier University of Applied Sciences, Germany	<b>Characterization of emulsions generated by the louching route</b> Alan Rawle, Malvern Instruments Inc., USA	<b>Simulation of die filling for powders with complex rheology</b> Thomas Breinlinger, Fraunhofer Institute for Mechanics of Materials IWM, Germany
<b>Grindability Testing by Scirocco Disperser</b> Mojtaba Ghadiri, University of Leeds, United Kingdom	<b>Wear-resistant Ultrasonic Extinction Sensor for on-line Particle Size Monitoring in Mining Applications</b> Helmut Geers, Sympatec GmbH, Germany	<b>Particle-Based Modelling of Free-Surface Flow and Mixing in Co-Rotating Twin-Screw Extruders</b> Josip Matić, Graz University of Technology, Austria
<b>Manufacturing of Pharmaceutical Pellets by Spheronization – DEM Simulation of Particle –</b> Dominik Weis, University of Kaiserslautern, Germany	<b>Cancer detection from breath? Aldehyde sensing by nanostructured micro-sensor arrays</b> Andreas Güntner, ETH Zurich, Switzerland	<b>An Improved Model for Dense Phase Pneumatic Conveying – Measurements and Validation</b> Michael Karle, Zeppelin Systems GmbH, Germany
(Nano)-Structured Materials	Applications of Particle Technology – Formulation and size enlargement processes	Particles in Contact and Processing – Fluidized Beds
<b>Fabrication of hierarchically assembled ceramic-polymer composites using spouted bed spray granulation</b> Eduard Eichner, Hamburg University of Technology, Germany	<b>Agglomeration Process and Recycling in Compacts of bauxite powders</b> Olivier Desplat, École des Mines de Saint Étienne, France	<b>Process intensification of batch fluidized bed layering granulation processes by temporal separation of sub-processes</b> Lisa Mielke, Otto-von-Guericke-University Magdeburg, Germany

	Modelling and Simulation – New Methods	Particles in Contact and Processing	Life & Food Science – Target Part Properties	(Nano)-Structured Materials – MpaC
15:00	<b>Resolved Lattice Boltzmann simulations of fluid flow in packed beds of varying structure</b> Bogdan Kravets, Ruhr University Bochum, Germany	<b>Experimental study of hydrodynamics and thermal behaviour DPS as a new HTF for solar applications</b> Pablo García-Triñanes, University of Surrey, United Kingdom	<b>Towards controlled powder surface properties by adjustment of the drying conditions</b> Anna Porowska, Hamburg University of Technology, Germany	<b>Novel Optical and Aerodynamic Online Measurement Techniques for Nano-Aerosols and their Application in MpaC</b> Franz Huber, Friedrich-Alexander University Erlangen-Nürnberg, Michael Pitz, University of Kaiserslautern, Dennis Kiesler, University of Duisburg-Essen, Germany
15:20	<b>A Lattice Boltzmann Method for Light and Algae Simulations in Photo-bioreactors</b> Albert Mink, Karlsruhe Institute of Technology, Germany	<b>Experimental study and numerical modelling of a microscopic level charge transport in highly resistive dust layers</b> Alpesh Laxman Vora, BTU Cottbus-Senftenberg, Germany	<b>Dynamics of capillary wetting of biopolymer powder</b> Julia Wangler, University of Hohenheim, Germany	
15:40	<b>The combination of FEM and DEM simulations for analysing the conveyor belt deflection under dynamic condition</b> Jiahe Shen, University of Newcastle, Australia	<b>Micro-Particulitics – The Challenge of not Clogging Microfluidic Devices upon Particle Generation</b> Christian Holtze, BASF SE, Germany	<b>HOT-MELT-COATING: Connecting process-parameters with material characteristics</b> Max Günther Müller, Technical University of Munich, Germany	<b>Modelling optical and (aero-) dynamic properties of particles for multi-parameter characterisation</b> Frank Babick, Dresden University of Technology, Germany
16:00	<b>Closing Ceremony</b>			

## General Information

PARTEC 2016 takes place at the Nürnberg Convention Centre (NCC) Ost of the Nuremberg exhibition centre. Address: Exhibition Centre Nuremberg, Messezentrum, 90471 Nürnberg, Germany



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### Registration / Office hours

The registration onsite is open on  
 Tuesday, April 19 – Wednesday, April 21  
 from 8–18h  
 Thursday, April 22 from 8–15 h

<b>(Nano)-Structured Materials</b>	<b>Applications of Particle Technology – Formulation and size enlargement processes</b>	<b>Particles in Contact and Processing – Fluidized Beds</b>
<p><b>Pulsation Reactor and Rotary Kiln as Versatile Technologies for Tuning the Properties of Metal Oxide Particles</b>            Claudia Hoffmann, IBU-tec advanced materials AG, Germany</p>	<p><b>Flash-Crystallization – A new process for designing crystalline products</b>            Daniel Selzer, Karlsruhe Institute of Technology, Germany</p>	<p><b>Spray fluidized bed agglomeration of amorphous food powders</b>            Martin Schmidt, Otto-von-Guericke-University Magdeburg, Germany</p>
<p><b>The Rheology of Fluidized Beds: Science, Practice and Industrial Application</b>            Denis Schütz, Anton Paar, Austria</p>	<p><b>Modelling and in-line Determination of Residence Time Distribution in Pharmaceutical Hot Melt Extrusion</b>            Jens Wesholowski, TU Dortmund, Germany</p>	<p><b>Particles Dynamics and Mixing Behavior in a Poly-dispersed Gas-solid Fluidized Bed by Color-PTV Measurement</b>            Zhaochen Jiang, Otto-von-Guericke-University Magdeburg, Germany</p>
<p><b>Electrohydrodynamic atomization of Cyclopentyl Chloride</b>            Phill Citroen, Centre of Expertise Water Technology, Netherlands</p>	<p><b>High temperature granulation – new possibilities in material design</b>            Michael Jacob, Glatt Ingenieurtechnik GmbH, Germany</p>	<p><b>Flow patterns in high-density circulating fluidized beds and their influence on heterogeneously catalyzed reactions</b>            Timo Hensler, Friedrich-Alexander University Erlangen-Nürnberg, Germany</p>

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