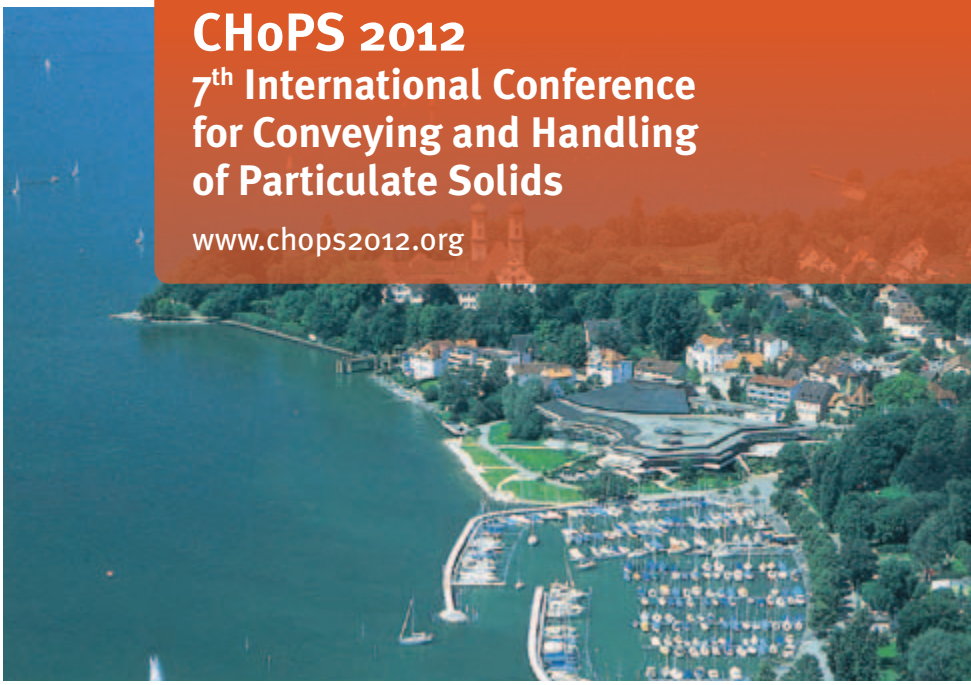
CHoPS 2012

PROGRAMME

10. – 13. September 2012
Friedrichshafen · Germany

CHoPS 2012
7th International Conference for Conveying and Handling of Particulate Solids

www.chops2012.org



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Monday, September 10, 2012

13:20 - 13:50	PLENARY LECTURE: Herrmann			
14:20 - 16:00	**Biomass handling**	**Silo design for flow**	**Mechanical conveying**	**DEM – process modeling**
	Barletta	Puri	Schott	Morrissey
	Craig	Guo	Hewitt	Mio
	Puri	Zetzener	Weheeler	Heine
	Lestander	Wensrich	Gloess	Müller
16:30 - 17:45	**Round table discussion**	**Simulations in pneumatic conveying**	**Industrial applications**	**DEM parameters**
	Ramirez-Gomez	Kaushal	Schneider	Cury
	Round table discussion	Pei	Ratnayake	Wypych
		Müller	Stephan	Schott
18:15 - 19:15	EVENING LECTURE: Enkel			
19:15 - 21:30	Welcome Reception			

Tuesday, September 11, 2012

09:15 - 09:45	PLENARY LECTURE: Theuerkauf			
10:15 - 12:20	**From particle contacts to bulk behavior**	**Industrial silo topics**	**Particle and agglomerate fracture**	**Multiphase**
	Paulick	Bradley	Jones	Sanchez Quintanilla
	Combarros	McGee	Antonyuk	Valciu
	Wojtkowski	Wiche	Portnikov	Mizonov
	Imole	Van Laar	Pelgrom	Özahi
	Thakur	Skowaisa	Klenk	Mezhericher
13:50 - 14:20	PLENARY LECTURE: Einav			
14:45 - 16:25	**From micro to macro**	**Elemet tests for pneumatic conveying**	**Particle impact**	**Multiphase**
	Mathews	Biswas	Deng	Olatunji
	Frankowski	Hussain	Brosh	Rasteiro
	Lin	Klinzing	Pinto	Vlasek
	Kumar	Jasevicus	Xi	Chen
16:55 - 17:45	**Two-phase flows, from micro to macro**	**Particle interaction and deformation**	**Characterization**	**Multiphase**
	Ebrahimi	Tomasetta	Bonifazi	Mizonov
	Robinson	Mütze	Wypych	Mallick
17:45 - 19:30		Workshop		
17:45	Poster introduction			
18:45 - 19:45	Poster Party			

Wednesday, September 12, 2012

09:15 - 09:45	PLENARY LECTURE: Katterfeld			
10:15 - 12:20	**PIKO**	**Innovative particle architectures and processes**	**Experimental investigations in pneumatic conveying**	**DEM contacts**
	Haarmann	Bensmann	Bradley	Kadau
	Salameh	Quintanilla	Ratnayake	Brown
	Auernhammer	Kleinschmidt	Shaul	Rimsa
	Kozhar	Stark	Mallick	Lommen
	Kappl	Thakur	Cronin	Mellmann
13:50 - 14:20	PLENARY LECTURE: Wilms			
14:45 - 16:00	**PIKO**	**Adhesion forces, friction and stress distribution during pressure agglomeration**	**Basic of flow**	**DEM shape & rolling**
	Mader	Haider	Schott	Wensrich
	Paul	Prigge	Weigler	Williams
	Strege	Osborne	de Ryck	Kacianauskas
16:55 - 17:45	**PIKO**	**Optimizing process and dissintegration behavior**	**Wear & attrition in pneumatic conveying**	**DEM flow modeling**
	Knoll	Chan	Farnish	Weinhart
	Knoop	Hahn	Santo	Artoni
	Rennecke	Mesnier	Rodnianski	Ramirez-Gomez
19:15 - 22:00	Conference Dinner			

Thursday, September 13, 2012

09:15 - 09:45	PLENARY LECTURE: Bell			
10:15 - 12:20	**PIKO**	**Continous mixing**	**Hydraulic transport phenomena**	**Powder testing**
	Torun	Dolgunin	Faraj	McGee
	Schmid	Müller	Schneider	Schulze
	Leroch	Sunkara	Faraj	Chen
	Cui	Cronin	Penik	Lommen
	Zellnitz	Gupta	Ulusarslan	Besant
13:50 - 14:20	PLENARY LECTURE: Jones			
14:45 - 16:00	**PIKO**	**Batch mixing**	**Basic of flow**	**Mechanical behaviour of bulk materials**
	Herrmann	Simons	Stratton	Wypych
	Wenzl	Ding	Nied	Su
	Meyer	Berthiaux	Lecreps-Prigge	Jäckel
16:00	Closing Ceremony			

Monday, September 10, 2012 — Session: Biomass

13:00	**OPENING CEREMONY**
13:20	**PLENARY LECTURE** **Blood purification usind core/shell particles** I. Herrmann, ETH Zurich/CH
13:50	Coffee Break
	Biomass Handling
14:20	**Can bulk solids best practice techniques for flow characterization and handling equipment design be used reliably for biomass materials?** D. Barletta, Università di Salerno, Fisciano (SA)/I; R.J. Berry, University of Greenwich, Chatham/UK; S.H. Larsson, T. Lestander, Swedish University of Agricultural Sciences, Umea/S; M. Poletto, Università di Salerno, Fisciano (SA)/I; A. Ramirez Gomez, Universidad Politécnica de Madrid/E
14:45	**Solids handling issues involving fine biomass** D. Craig, Jenike & Johanson, Inc., Tyngsboro/USA
15:10	**Fundamental mechanical properties of bio-feedstock in granular form for prediction of pellet quality** H. Yi, A. Karamchandani, V.M. Puri, The Pennsylvania State University, University Park/USA
15:35	**On-line NIR characterisation of particulate solids from lignocellulosic biomass** T. Lestander, Swedish University of Agricultural Sciences, Umea/S
16:00	Coffee Break and Snacks
	Round Table Discussion: Biomass, a new raw material?
16:30	**On the determination of the risk of self-ignition of biomass materials** A. Ramirez-Gomez, L. Medic-Pejic, E. Querol-Aragón, C. Grima-Olmedo, J. García-Torrent, Universidad Politécnica de Madrid/E
16:55 – 17:45	**Round Table Discussion: Biomass, a new raw material?**
17:45	Coffee Break
18:15	**EVENING LECTURE** **Why collaboration across industries is crucial for engineering companies** E. Enkel, Zeppelin University, Friedrichshafen/D
19:15 – 21:30	**Welcome Reception**

Monday, September 10, 2012 — Session: Silo technology / Conveying

13:00	**OPENING CEREMONY**
13:20	**PLENARY LECTURE** **Blood purification usind core/shell particles** I. Herrmann, ETH Zurich/CH
13:50	Coffee Break
	Silo Design for Flow
14:20	**Internal stress gradient of powder en masse under hydrostatic compression** H. Yi, V. M. Puri, The Pennsylvania State University, Park/USA
14:45	**Investigation of arching behavior in mass-flow hoppers under surcharge pressures** J. Guo, A.W. Roberts, J.D. Prigge, University of Newcastle/AUS
15:10	**A new approach for the design of funnel flow silos taking anisotropy into account** H. Zetzener, TU Braunschweig/D; T. Ittershagen, Chemetall GmbH, Langelsheim/D; J. Stieghan, A. Kwade, TU Braunschweig/D
15:35	**Analysis of a train load-out bin using combined continuum methods and discrete element modelling** T.J. Donohue, C.M. Wensrich, A.W. Roberts, D. Ilic, University of Newcastle/AUS; A. Katterfeld, University of Magdeburg/D
16:00	Coffee Break and Snacks
	Simulations in Pneumatic Conveying
16:30	**CFD modeling for pipeline flow of coarse particles at high concentration** D.R. Kaushal, Indian Institute of Technology, Delhi/IND; Y. Tomita, KIT Japan, Kitakyushu/J
16:55	**Numerical analysis of contact electrification in fluidization and pneumatic conveying** C. Pei, C.-Y. Wu, University of Birmingham/UK; D. England, H. Berchtold, Sanofi-Aventis Deutschland GmbH, Frankfurt/D; M. Adams, University of Birmingham/UK
17:20	**Modeling the influence of particle shape on pneumatic conveying** J.R. Third, G. Lu, C.R. Müller, ETH Zurich/CH
17:45	Coffee Break
18:15	**EVENING LECTURE** **Why collaboration across industries is crucial for engineering companies** E. Enkel, Zeppelin University, Friedrichshafen/D
19:15 – 21:30	**Welcome Reception**

Monday, September 10, 2012 — Session: Conveying

13:00	**OPENING CEREMONY**
13:20	**PLENARY LECTURE** **Blood purification usind core/shell particles** I. Herrmann, ETH Zurich/CH
13:50	Coffee Break
	Mechanical Conveying
14:20	**Model for energy flow of screws acting on a free surface** C.P. Geijs, ESI Eurosilo BV, Purmerend/NL; D.L. Schott, Delft University of Technology; J.P.J. Ruijgrok, ESI Eurosilo BV, Purmerend/NL; G. Lodewijks, Delft University of Technology/NL
14:45	**Build-up of powders in auger fillers** C. Hewitt, A. Ingram, C. Wu, The University of Birmingham/UK; D. Smith, M. Ridyard, Procter & Gamble Technical Centres, Newcastle/UK
15:10	**Conveyor belt indentation rolling resistance – measurement and analysis** C. Wheeler, P. Munzenberger, University of Newcastle/AUS
15:35	**1A method for analysing the die filling behaviour of ceramic granules** B. Gloess, M. Fries, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden/D; M. Nebelung, Dresden/D
16:00	Coffee Break and Snacks
	Industrial Applications
16:30	**Successful implementation of a high capacity pneumatic conveying technology for minerals in the polymer industry** H. Schneider, G. Winkhardt, Zeppelin Systems GmbH, Friedrichshafen/D
16:55	**A design and simulation method for pneumatic conveying systems based on a scaling-up technique** C. Ratnayake, Tel-Tek, Porsgrunn/N
17:20	**Hygienic handling of bulk materials** M. Stephan, Coperion GmbH, Weingarten/D
17:45	Coffee Break
18:15	**EVENING LECTURE** **Why collaboration across industries is crucial for engineering companies** E. Enkel, Zeppelin University, Friedrichshafen/D
19:15 – 21:30	**Welcome Reception**

Monday, September 10, 2012 — Session: DEM

13:00	**OPENING CEREMONY**
13:20	**PLENARY LECTURE** **Blood purification usind core/shell particles** I. Herrmann, ETH Zurich/CH
13:50	Coffee Break
	DEM – Process Modeling
14:20	**An experimental and DEM study of the behavior of iron ore fines** J. Morrissey, J. Sun, J.F. Chen, J.Y. Ooi, K.T. Both, G. Horrigmoe, The University of Edinburgh, Scotland/UK
14:45	**Modeling of particle charging behavior of blast furnace using DEM and its measurement** H. Mio, M. Kadowaki, S. Matsuzaki, K. Higuchi, Nippon Steel Corporation, Futtsu/J
15:10	**Micro scale simulation of the particle formation in fluidized bed spray agglomeration** M. Heine, S. Antonyuk, S. Heinrich, Hamburg University of Technology/D; L. Fries, D. Dopfer, G. Niederreiter, Nestlé Research Center, Lausanne/CH; S. Palzer, Nestlé Product Technology Center, York/UK
15:35	**DEM-Simulation of the normal impact behaviour granules** P. Müller, J. Tomas, University of Magdeburg/D
16:00	Coffee Break and Snacks
	DEM Parameters
16:30	**Characterizing the flow of bulk solids using a calibrated DEM material model** D. Curry, J. Favier, DEM Solutions Ltd, Edinburgh/UK
16:55	**Parameter sensitivity in discrete element modelling of conveyor transfers** D.B. Hastie, P.W. Wypych, University of Wollongong/AUS
17:20	**How small differences in the used contact model influence DEM simulations results** D.L. Schott, S.W. Lommen, Delft University of Technology/NL; A. Katterfeld, University of Magdeburg/D
17:45	Coffee Break
18:15	**EVENING LECTURE** **Why collaboration across industries is crucial for engineering companies** E. Enkel, Zeppelin University, Friedrichshafen/D
19:15 – 21:30	**Welcome Reception**

Tuesday, September 11, 2012 — Session: PARDEM

9:15	PLENARY LECTURE **Applications of discrete element method simulations in industry** J. Theuerkauf, Dow Chemicals, Midland/USA
9:45	Coffee Break and Snacks
	From particle contacts to bulk behavior
10:15	**Stiffness: definitions and application in DEM simulation** A. Kwade, TU Braunschweig/D; M. Morgeneyer, M. Paulick, Université de Technologie de Compiègne/F; H. Zetzener, TU Braunschweig/D
10:40	**Segregation of particulate solids: experiments and DEM simulations** M. Combarros, TU Braunschweig/D; H.J. Feise, BASF SE, Ludwigshafen/D; H. Zetzener, A. Kwade, TU Braunschweig/D
11:05	**Predictive studies on the avalanching behaviour of cohesive powders in a rotating drum** M. Wojtkowski, O.I. Olukayode, S. Luding, University of Twente, Enschede/NL
11:30	**Discrete element simulations and experiments on the deformation of cohesive powders in a bi-axial box** O. Imole, N. Kumar, V. Magnanimo, S. Luding, University of Twente, Enschede/NL
11:55	**Discrete element modelling of cohesive bulk materials** S.C. Thakur, J.P. Morrissey, J. Sun, J.F. Chen, J. Ooi, University of Edinburgh/UK
12:20	Lunch Break
13:50	PLENARY LECTURE **Cycles of melting and solidifications: from geological faults to industrial hot melt agglomeration** I. Einav, The University of Sidney/AU
14:20	Coffee Break and Snacks

LECTURE PROGRAMME

Tuesday, September 11, 2012 — Session: PARDEM

	From micro to macro
14:45	**Silo model tests in geotechnical centrifuge** J. Mathews, University of Natural Resources and Life Science, Vienna/A
15:10	**Correlation of experimental and numerical DEM results to investigate underlying mechanical processes.** P. Frankowski, M. Morgeneyer, Université de Technologie de Compiègne/F; A. Kwade, TU Braunschweig/D
15:35	**Asymmetry of the stress tenor in granular materials** J. Lin, W. Wu, University of Natural Resources and Life Sciences, Vienna/A
16:00	**Constitutive behavior from elementary deformation modes for assemblies of polydisperse spheres** N. Kumar, O. I. Imole, V. Magnanimo, S. Luding, University of Twente, Enschede/NL
16:25	Coffee Break and Snacks
	Two-phase flows; From micro to macro
16:55	**Simulation of dilute horizontal pneumatic conveying with experimental validation (PARDEM Project 8)** M. Ebrahimi, M. Crapper, University of Edinburgh/UK
17:20 – 17:45	**Meshfree simulation of mesoscale fluid-particle systems** M. Robinson, S. Luding, University of Twente, Enschede/NL; M. Ramaioli, Nestlé Research Center, Lausanne/CH

Tuesday, September 11, 2012 — Session: Silo technology

9:15	PLENARY LECTURE **Applications of discrete element method simulations in industry** J. Theuerkauf, Dow Chemicals, Midland/USA
9:45	Coffee Break and Snacks
	Industrial silo topics
10:15	**An integrated approach to bulk solids characterization and prediction of behavior for plant design and troubleshooting** M. Bradley, R. Farnish, R. Berry, University of Greenwich, Chatham Maritime, Kent/UK
10:40	**Design considerations for hopper outlet loads on feeders** E. McGee, L. Bates, Ajax Equipment, Bolton/UK
11:05	**Improved design procedures for wet solids concentrator vessels** S. Wiche, I. Lecreps-Prigge, Tunra Bulk Solids Handling Research Associates, Callaghan/AUS
11:30	**Static discharges: small ignition sources, big effects** G. Van Laar, B. Broeckmann, Inburex GmbH Consulting, Hamm/D
11:55	**Cost savings using modern radar technology for level measurement** J. Skowaisa, VEGA Grieshaber KG, Schiltach/D
12:20	Lunch Break
13:50	PLENARY LECTURE **Cycles of melting and solidifications: from geological faults to industrial hot melt agglomeration** I. Einav, The University of Sidney/AU
14:20	Coffee Break and Snacks

Tuesday, September 11, 2012 — Session: Element tests

	Element tests for pneumatic conveying
14:45	**A study on surface behavior of ductile material in erosion** S. Biswas, A. Cenna, K. Williams, M. Jones, The University of Newcastle/AUS
15:10	**A sensing technique for electrostatic charge polarity of particles in material pneumatic handling progresses** T. Hussain, University of Greenwich, Kent/UK
15:35	**Development of a microprobe for pneumatic conveying measurements and analysis** M. Zhang, G. Klinzing, W. Clark, University of Pittsburgh/USA
16:00	**Energy dissipation during oblique impact of ultrafine particles** R. Jasevicius, Vilnius Gediminas Technical University/LT and J. Tomas, University of Magdeburg/D; R. Kacianauskas, Vilnius Gediminas Technical University/LT
16:25	Coffee Break and Snacks
	Particle interaction and deformation
16:55	**A theoretical framework for the interpretation of the effect of temperature on the interparticle interactions** I. Tomasetta, D. Barletta, M. Poletto, University of Salerno, Fisciano (SA)/I
17:20 – 17:45	**Modelling and parameter study of the elastic-plastic deformation** T. Mütze, TU Bergakademie Freiberg/D
17:45 – 19:30	WORKSHOP: **Development to a new functional design – concept to pneumatic conveying systems** F.A. Rizk, Neuhofen/D

Tuesday, September 11, 2012 — Session: Comminution

9:15	PLENARY LECTURE **Applications of discrete element method simulations in industry** J. Theuerkauf, Dow Chemicals, Midland/USA
9:45	Coffee Break and Snacks
	Particle and agglomerate fracture
10:15	**Analysis of wear mechanisms and surface modifications in fly ash conveying pipelines** A.A. Cenna, K.C. Williams, M.G. Jones, The University of Newcastle, Callaghan/AUS; W. Robinson, Delta Electricity, Wallerawang/AUS
10:40	**Breakage behavior of non-spherical agglomerates: numerical simulations based on experimental results** S. Antonyuk, M. Dosta, S. Heinrich, Hamburg University of Technology/D
11:05	**The effect of high temperature on the strength measurements of particles** D. Portnikov, H. Kalman, Ben-Gurion University of the Negev, Beer Sheva/IL
11:30	**Controlled fracture behaviour of field peas via the state diagram** P.J.M. Pelgrom, M.A.I. Schutyser, R.M. Boom, Wageningen University/NL
11:55	**Dust reduction with spray nozzles** U. Klenk, E. Schmidt, University of Wuppertal/D
12:20	Lunch Break
13:50	PLENARY LECTURE **Cycles of melting and solidifications: from geological faults to industrial hot melt agglomeration** I. Einav, The University of Sidney/AU
14:20	Coffee Break and Snacks

Tuesday, September 11, 2012 — Session: Comminution/Characterization

	Particle impact
14:45	**Centrifugal impact testing for measurements of particle adhesion, erosive wear and particle degradation** T. Deng, M.S.A. Bradley, University of Greenwich, Chatham/UK
15:10	**The effect of van der waals force on particle comminution in jet-mill** T. Brosh, H. Kalman, A. Levy, Ben-Gurion University of the Negev, Beer-Sheva/IL
15:35	**Model-based scale-up of impact milling** M. Pinto, S. Bermingham, Process Systems Enterprise, London/UK; B.T. Gettelfinger, S.R. Glassmeyer, Procter & Gamble, Cincinnati/USA
16:00	**Size reduction and shape control with a pin mill to manufacture particulate solids with desired flow property** Z. Xi, S. Ding, POSTEC and Tel-Tek, Porsgrunn/N; G. Enstad, Telemark University College, Porsgrunn/N
16:25	Coffee Break and Snacks
	Characterization
16:55	**Hyperspectral imaging logics and algorithms in particulate solids analysis: examples review** S. Serranti, G. Bonifazi, Sapienza - Università di Roma/I
17:20	**Review and evaluation of dustiness testing methods for powders and granular bulk materials** P. Wypych, V. Karthik, L. Mar, University of Wollongong/AUS
17:45	**Poster introduction** Two parallel sessions
18:45 – 19:45	**Poster Party**

Tuesday, September 11, 2012 — Session: Multiphase

9:15	PLENARY LECTURE **Applications of discrete element method simulations in industry** J. Theuerkauf, Dow Chemicals, Midland/USA
9:45	Coffee Break and Snacks
	Multiphase
10:15	**Effect of magnetic field orientation on magneto-stabilization of fluidized beds** M. Sanchez Quintanilla, J.M. Valverde, M.J. Espin, University of Seville/E
10:40	**Investigation of fluidization patterns for binary powder mixtures** S. Valciu, A. Dyrøy, Hydro Aluminium, Porsgrunn/N; S.A. Bradley, University of Greenwich, Chatham/UK
11:05	**A cell model of heat transfer between crosswise flows of gas and particulate solids** V. Mizonov, Ivanovo State Power Engineering University/RUS; V. Zaitsev, N. Yelin, Ivanovo State University of Chemical Technology, Ivanovo/RUS
11:30	**Recent developments on fluidized bed drying of particles** E. Özahi, M.Ö. Çarpínlíoğlu, H. Demir, University of Gaziantep/TR
11:55	**Droplet-droplet and particle-particle interactions in multiphase flow of spray dryers** M. Mezhericher, A. Levy, I. Borde, Ben-Gurion University of the Negev, Beer Sheva/IL
12:20	Lunch Break
13:50	PLENARY LECTURE **Cycles of melting and solidifications: from geological faults to industrial hot melt agglomeration** I. Einav, The University of Sidney/AU
14:20	Coffee Break and Snacks

Tuesday, September 11, 2012 — Session: Multiphase

	Multiphase
14:45	**Determination of dispersion stability by particle sedimentation** O. Olatunji, J. Tomas, University of Magdeburg/D
15:10	**Modelling solid-liquid flow in pipes using CFD: study of the effect of turbulence modification** R. Silva, F. A. P. Garcia, P. M. Faia, M. G. Rasteiro, Universidade de Coimbra/P
15:35	**Particle-laden flow in circular pipe with stationary particulate bed** P. Vlasak, Z. Chara, B. Kysela, Institute of Hydrodynamics ASCR, v. v. i., Prague 6/CZ
16:00	**Experimental validation of the simulation of multiphase flow using computational fluid dynamics (CFD)** X. Chen, C. Wheeler, The University of Newcastle/AUS
16:25	Coffee Break and Snacks
	Multiphase
16:55	**Modelling of fluidized bed by means of the theory of markov chains** V. Mizonov, A. Mitrofanov, A. Ogurtzov, Ivanovo State Power Engineering University/RUS; K. Tannous, University of Campinas/BR
17:20	**Modelling thermal conductivity for nanopowder suspension in fluid (nanofluid)** S. Mallick, A. Misra, Thapar University, Patiala/IND
17:45	**Poster introduction** Two parallel sessions
18:45 – 19:45	**Poster Party**

Wednesday, September 12, 2012 — Session: PIKO

9:15	PLENARY LECTURE **Application of the discrete element method in mechanical bulk material conveying** A. Katterfeld, University of Magdeburg/D
9:45	Coffee Break and Snacks
	PIKO
10:15	**Simulation of adhesion-moments depending on the van der Waals interactions between rough particles and smooth walls in gaseous environment** A. Haarmann, E. Schmidt, University of Wuppertal/D
10:40	**Adhesion mechanisms of the contact interface of TiO_2 nanoparticles in films and aggregates** S. Salameh, University of Bremen/D; M. Seo, Catholic University of Leuven/B; L. Colombi Ciacchi, L. Mädler, University of Bremen/D
11:05	**Colloidal aggregates tested via nano indentation and simultaneous 3D imaging** M. Roth, MPI for Polymer Research, Mainz/D; C. Schilde, TU Braunschweig/D; P. Lellig, MPI for Polymer Research, Mainz/D; A. Kwade, TU Braunschweig/D; G. K. Auernhammer, MPI for Polymer Research, Mainz/D
11:30	**Experimentally calibrated contact models for micrometer-sized particles,** S. Kozhar, S. Antonyuk, S. Heinrich, Hamburg University of Technology /D; L. Gilson, U. Bröckel, Umwelt-Campus Birkenfeld/D
11:55	**Kinetics of viscous sintering of powder particles** M. Ye, M. Kappl, MPI for Polymer Research, Mainz/D
12:20	Lunch Break
13:50	PLENARY LECTURE **The role of solids handling expertise in plant engineering** H. Wilms, Zeppelin Systems GmbH, Friedrichshafen/D
14:20	Coffee Break and Snacks

Wednesday, September 12, 2012 — Session: PIKO

	PIKO
14:45	**Fine adhesive particles – a contact model including viscous damping** K. Mader, J. Tomas, University of Magdeburg/D
15:10	***In-situ* deformation studies in SEM and TEM of micro- and nanoparticles** J. Paul, M. Ziener, S. Romeis, W. Peukert, University of Erlangen-Nuremberg/D
15:35	**Structural changes of a fine cohesive powder induced by shearing and compaction** A. Weuster, Universität Duisburg-Essen/D; S. Strege, H. Zetzener, A. Kwade, TU Braunschweig/D; L. Brendel, D.E. Wolf, Universität Duisburg-Essen/D
16:00	Coffee Break and Snacks
	PIKO
16:30	**Influence of the surface properties and the magnetic field strength on the adhesion forces of magnetic composite particles** J. Knoll, H. Nirschl, Karlsruhe Institute of Technology/D
16:55	**Particles in ultrasound agitated gases** C. Knoop, U. Fritsching, University of Bremen/D
17:20 – 17:45	**Continuous dry dispersion of nanoparticle agglomerates by impact loading** S. Rennecke, A.P. Weber, Clausthal University of Technology/D
19:15 – 22:00	**Conference Dinner**

Wednesday, September 12, 2012 — Session: Product design

9:15	PLENARY LECTURE **Application of the discrete element method in mechanical bulk material conveying** A. Katterfeld, University of Magdeburg/D
9:45	Coffee Break and Snacks
	Innovative particle architectures and processes
10:15	**Formulation of hollow sphere granules in a granulation dish** S. Bensmann, T. Pischel, G. Grünewald, F. Kleine Jäger, BASF SE, Ludwigshafen/D
10:40	**A $Ca(OH)_2/SiO_2$ composite for enhanced sorption of CO_2** J.M. Valverde, F. Pontiga, C. Soria-Hoyo, M.A.S. Quintanilla, H. Moreno, F.J. Duran, M.J. Espin, University of Seville/E
11:05	**Improvement of flowability of cohesive powders by nano-scaled flow additives** S. Kleinschmidt, J. Tomas, Otto-von-Guericke-University Magdeburg/D
11:30	**Degassing of polyolefines – a must to avoid hazards and quality problems** B. Stark, Coperion GmbH, Weingarten/D
11:55	**An experimental and numerical study of compression and shear behaviour of detergent powders** S.C. Thakur, J. Sun, J.F. Chen, J.Y. Ooi, Edinburgh University/UK; A. Hossein, Procter and Gamble, Newcastle upon tyne/UK
12:20	Lunch Break
13:50	PLENARY LECTURE **The role of solids handling expertise in plant engineering** H. Wilms, Zeppelin Systems GmbH, Friedrichshafen/D
14:20	Coffee Break and Snacks

Wednesday, September 12, 2012 — Session: Agglomeration

	Adhesion forces, friction and stress distribution during pressure agglomeration
14:45	**Assessment of particle contact mechanisms in pressure agglomeration by micromanipulation of primary particle pairs** C. Haider, The University of Sheffield/UK; T. Althaus, G. Niederreiter, Nestlé Research Center, Lausanne/CH; S. Palzer, Nestlé Product Technology Centre, York/UK; A. Salman, The University of Sheffield/UK
15:10	**Investigations of the wall friction in powder die compaction by an innovative measurement technique** J. Prigge, TUNRA Bulk Solids Handling Research Associates, Callaghan/AUS; K. Sommer, TU München, Freising/D
15:35	**Ribbon temperatures during roller compaction** J.D. Osborne, The University of Sheffield /UK; T. Althaus, G. Niederreiter, Nestle Research Centre, Lausanne/CH; S. Palzer, Nestle PTC, York/UK; M.J. Hounslow, A.D. Salman, The University of Sheffield /UK
16:00	Coffee Break and Snacks
	Optimizing process and dissintegration behaviour
16:30	**Blade – granule bed stress in a cylindrical high shear granulator: wet bed study** E. Chan, The University of Sheffield/UK; G.K. Reynolds, AstraZeneca, Macclesfield/UK; B. Gururajan, AstraZeneca, Mölndal/S; M.J. Hounslow, A.D. Salman, The University of Sheffield/UK
16:55	**Particle cluster formation and reduction in concentrated fermented milk as affected by post-processing** C. Hahn, W. Rösingh, S. Nöbel, J. Hinrichs, J. Weiss, Universität Hohenheim, Stuttgart/D
17:20 – 17:45	**Incorporation of food grade disintegrants to promote fast tablet dissolution** X. Mesnier, The University of Sheffield /UK; T. Althaus, L. Forny, G. Niederreiter, Nestlé Research Centre, Lausanne/CH; S. Palzer, Nestlé PTC, York /UK; M.J. Hounslow, A.D. Salman, The University of Sheffield/UK
19:15 – 22:00	**Conference Dinner**

Wednesday, September 12, 2012 — Session: Conveying

9:15	PLENARY LECTURE **Application of the discrete element method in mechanical bulk material conveying** A. Katterfeld, University of Magdeburg/D
9:45	Coffee Break and Snacks
	Experimental investigations in pneumatic conveying
10:15	**Monitoring particle velocity with an electrostatic sensor in pneumatic conveyors** T. Gorman, D.I. Armour-Chélu, T. Deng, M.S.A. Bradley, University of Greenwich, Chatham/UK
10:40	**Pneumatic conveying of fish feed pellets with minimum degradation** C. Ratnayake, Tel-Tek, Porsgrunn/N; K. Sveinsvoll, Skretting AS, Stavanger/N
11:05	**Typical fluidization characteristics for geldart's classification groups** S. Shaul, R. Evgeny, K. Haim, Ben-Gurion University of the Negev, Beer Sheva/IL
11:30	**Investigating into straight-pipe conveying characteristics and minimum transport criteria for fluidised dense-phase pneumatic transport** G. Setia, A. Bansal, S. Mallick, Thapar University, Patiala/IND
11:55	**Probabilistic analysis of particle velocity in pneumatic conveying** K. Cronin, K. Hanley, E. Byrne, University College Cork/IRL
12:20	Lunch Break
13:50	PLENARY LECTURE **The role of solids handling expertise in plant engineering** H. Wilms, Zeppelin Systems GmbH GmbH, Friedrichshafen/D
14:20	Coffee Break and Snacks

Wednesday, September 12, 2012 — Session: Conveying

	Basics of Flow
14:45	**Dynamic moisture distribution in stockpiles for asphalt production** D.L. Schott, Delft University of Technology/NL; B. de Bruin, BAM Wegen Materieel, Tiel/NL; J.A. Ottjes, Delft University of Technology/NL; E.W. Demmink, BAM Wegen Materieel, Tiel/NL; G. Lodewijks, Delft University of Technology/NL
15:10	**Investigation of mass flow in a mixed flow grain dryer** F. Weigler, H. Scaar, J. Mellmann, Leibniz Institute for Agricultural Engineering Potsdam-Bornim /D
15:35	**Confined flows of non-cohesive granular materials** A. de Ryck, Mines Albi - Université de Toulouse, Albi/F
16:00	Coffee Break and Snacks
	Wear & Attrition in Pneumtaic Conveying
16:30	**Prediction of particle breakage through industrial pneumatic conveyors using laboratory equipment** R. Farnish, J. Rojas, M.S.A. Bradley, University of Greenwich, Chatham/UK
16:55	**Attrition of particles in bends of pneumatic conveying systems** N. Santo, H. Kalman, Ben-Gurion University of the Negev, Beer Sheva/IL
17:20 – 17:45	**Experimental investigation of the significant parameters influencing the size-reduction process in a jet mill** V. Rodnianski, O. Nitzan, Y. Turgeman, A. Levy, H. Kalman, Ben-Gurion University of the Negev, Beer-Sheva/IL

19:15 – 22:00 **Conference Dinner**

Wednesday, September 12, 2012 — Session: DEM

9:15	PLENARY LECTURE **Application of the discrete element method in mechanical bulk material conveying** A. Katterfeld, University of Magdeburg/D
9:45	Coffee Break and Snacks
	DEM contacts
10:15	**Loose powders and collapsible structures: discrete modeling** D. Kadau, ETH Zurich/CH; H. J. Herrmann, ETH Zurich/CH
10:40	**A bond model for DEM simulation of bonded particles and deformable boundaries** N. Brown, J.F. Chen, J.Y. Ooi, The University of Edinburgh/UK
11:05	**Simulation of interaction of particles via viscoelastic interface** V. Rimsa, R. Kacianauskas, H. Sivilevicius, Vilnius Gediminas Technical University/LT
11:30	**DEM speedup: stiffness effects on bulk material behavior** S. Lommen, D. Schott, G. Lodewijks, Delft University of Technology/NL
11:55	**Influence of particle shape on the flow properties of grain products** J. Mellmann, T. Hoffmann, Chr. Fürll, Leibniz Institute for Agricultural Engineering Potsdam-Bornim/D
12:20	Lunch Break
13:50	PLENARY LECTURE **The role of solids handling expertise in plant engineering** H. Wilms, Zeppelin Systems GmbH, Friedrichshafen/D
14:20	Coffee Break and Snacks

Wednesday, September 12, 2012 — Session: DEM

	DEM shape & rolling
14:45	**Rolling friction and shape in discrete element modelling** C. Wensrich, University of Newcastle, Callaghan/AUS; A. Katterfeld, University of Magdeburg/D; D. Sugo, University of Newcastle, Callaghan/AUS
15:10	**Particle shape characterisation and its application to discrete element modelling** K.C. Williams, TUNRA Bulk Solids, Newcastle/AUS; S. Weeger, University of Nuremberg/D; T.J. Donohue, W. Chen, TUNRA Bulk Solids, Newcastle/AUS
15:35	**Simulation of impact of randomly-shaped quasi-spherical particle** L. Tumonis, R. Kacianauskas, Vilnius Gediminas Technical university/LT; A. Dziugys, Lithuanian Energy Institute, Kaunas/LT
16:00	Coffee Break and Snacks
	DEM flow modeling
16:30	**Closure relations for shallow granular flows from particle simulations** T. Weinhart, A.R. Thornton, O. Bokhove, S. Luding, University of Twente, Enschede/NL
16:55	**Effective wall slip in chutes and channels: experiments and discrete element simulations** R. Artoni, A. Santomaso, P. Canu, University of Padova,/I
17:20 – 17:45	**Numerical effects on DEM-predicted silo wall pressures derived from the use of different filling procedures** C. González-Montellano, Á. Ramírez-Gómez, J.M Fuentes, F. Ayuga, Universidad Politécnica de Madrid/E
19:15 – 22:00	**Conference Dinner**

Thursday, September 13, 2012 — Session: PIKO

9:15	PLENARY LECTURE **Where have we gone wrong (or right) – reflections on solids handling in the chemical industry** T. Bell, DuPont/USA
9:45	Coffee Break and Snacks
	PIKO
10:15	**Combined *in-situ* QCM and FTIR studies of the influence of UV irradiation and relative humidity on TiO_2 particle ensembles** B. Torun, C. Kunze, University of Paderborn/D
10:40	**Influence of relative humidity on flow properties of nanoparticles** M. Dörmann, B. Torun, G. Grundmeier, H.-J. Schmid, University of Paderborn/D
11:05	**Adhesion forces of silica nanoparticles in humid air, investigated by molecular dynamic simulations and SAXS measurements** S. Leroch, University of Life sciences Vienna /A; H. Peterlik, University of Vienna/A; M. Wendland, University of Life sciences, Vienna/A
11:30	**Laminar flow about a carrier particle coated with small drug particles** Y. Cui, M. Sommerfeld, Martin-Luther-Universität Halle-Wittenberg, Merseburg/D
11:55	**Glass beads as alternative carrier systems for dry powder inhalers** S. Zellnitz, J.D. Redlinger-Pohn, Graz Technical University/A; H. Schroettner, FELMI_ZFE, Graz/A; N.A. Urbanetz, Research Center Pharmaceutical Engineering, Graz/A
12:20	Lunch Break
13:50	PLENARY LECTURE **Bulk solids handling: an australian perspective** M. Jones, TUNRA Bulk Solids/AU
14:20	Coffee Break and Snacks
	PIKO
14:45	**Liquid distribution in powders under shear** R. Mani, D. Kadau, J.H. Herrmann, ETH Zürich/CH
15:10	**3D observation of wet granulates under shear** J. Wenzl, M. Roth, R. Stangenberg, G.K. Auernhammer, MPI for Polymer Research, Mainz/D
15:35	**Probing the mechanical particle/particle and particle/wall interaction based on nanoindentation** J. Meyer, R. Fuchs, A. Kumar, T. Staedler, X. Jiang, University of Siegen/D
16:00	**Closing Ceremony**

Thursday, September 13, 2012 — Session: Mixing

9:15	PLENARY LECTURE **Where have we gone wrong (or right) – reflections on solids handling in the chemical industry** T. Bell, DuPont/USA
9:45	Coffee Break and Snacks
	Continous Mixing
10:15	**The continuous mixing process of particulate solids with portions delivery of some components** V. Dolgunin, O. Ivanov, A. Klimov, E. Ryabova, Tambov State Technical University/RUS
10:40	**Axial dispersion within rotating cylinders** J.R. Third, L. Guang, C.R. Müller, ETH Zurich/CH
11:05	**A study on the influencing parameters of the particle motion in a flighted rotary drum** K. R Sunkara, Otto-von-Guericke-University Magdeburg/D; J. Mellmann, Leibniz Institute for Agricultural Engineering (ATB), Potsdam/D; F. Herz, E. Specht, Otto-von-Guericke-University Magdeburg/D
11:30	**Continuous time markov chain model of particle motion in a rotary drum** K. Cronin, University College Cork/IRL
11:55	**Effect of hydrodynamic interaction on the segregation rate in bidisperse gas-solid fluidised beds** P. Gupta, J. Sun, J.Y. Ooi, University of Edinburgh/UK
12:20	Lunch Break
13:50	PLENARY LECTURE **Bulk solids handling: an australian perspective** M. Jones, TUNRA Bulk Solids/AU
14:20	Coffee Break and Snacks
	Batch Mixing
14:45	**Experiments and simulation of granular flow in a helical ribbon blade mixer** T.A.H. Simons, S. Bensmann, BASF SE, Ludwigshafen/D; H. Zetzener, University of Technology, Braunschweig /D; M. Schilling, H.J. Feise, BASF SE, Ludwigshafen/D; A. Kwade, University of Technology, Braunschweig /D
15:10	**Experimental investigation into mixing operation between particulate solid and viscous fluid with a shear batch mixer** M. Ye, Telemark University College, Porsgrunn/N; S. Ding, POSTEC, Tel-Tek, Porsgrunn/N; H. Yang, University of Technology, Wuhan/PRC
15:35	**Optimisation of mixing of segregating particulate solids** V. Mizonov, S. Krupin, K. Shelatonova, E. Barantseva, Ivanovo State Power Engineering University /RUS; H. Berthiaux, C. Gatumel, Ecole des Mines d'Albi/F
16:00	**Closing Ceremony**

Thursday, September 13, 2012 — Session: Conveying

9:15	PLENARY LECTURE **Where have we gone wrong (or right) – reflections on solids handling in the chemical industry** T. Bell, DuPont/USA
9:45	Coffee Break and Snacks
	Hydraulic Tansport Phenomena
10:15	**Fast and non-intrusive measurement and visualisation of solids velocity and concentration in horizontal sand-water flow** Y. Faraj, M. Wang, University of Leeds/UK
10:40	**Hydraulic conveying of polymers – advanced technology for long distances and high capacities** H. Schneider, H. Wilms, Zeppelin Systems GmbH, Friedrichshafen/D
11:05	**Application of the ERT for slurry flow regime characterisation and analysis of stratified flow** Y. Faraj, M. Wang, University of Leeds/UK
11:30	**Concentration distribution in pipe flow of glass-bead slurry: measured profiles and their comparison with models** V. Penik, V. Matousek, J. Krupicka, IH ASCR, Prague/CZ
11:55	**Experimental study on the effect of diameter ratio on velocity for the low density spherical capsule train flow** D. Ulusarslan, Yildiz Technical University, Istanbul/TR
12:20	Lunch Break
13:50	PLENARY LECTURE **Bulk solids handling: an australian perspective** M. Jones, TUNRA Bulk Solids/AU
14:20	Coffee Break and Snacks
	Slug Conveying Phenomena
14:45	**Stress analysis of horizontal slug Flow pneumatic conveying via DEM-CFD simulation** R. Stratton, University of Newcastle, Callaghan/AUS
15:10	**Stress states and pressure loss in pneumatically conveyed single plugs** C. Nied, TU München, Freising/D; H. Dauth, University of Applied Sciences Münster/D; K. Sommer, TU München, Freising/D
15:35	**An insight into the physical mechanisms involved in slug transport and pipe blockage** I. Lecreps-Prigge, M.G. Jones, Tunra Bulk Solids Handling Research Associates, Callaghan/AUS; K. Sommer, TU München, Freising/D
16:00	Closing Ceremony

Thursday, September 13, 2012 — Session: Shear testing

9:15	PLENARY LECTURE **Where have we gone wrong (or right) – reflections on solids handling in the chemical industry** T. Bell, DuPont/USA
9:45	Coffee Break and Snacks
	Powder testing
10:15	**Wall Friction: some guidance gained by comparison of measurements made by different laboratories** E. McGee, Ajax Equipment Ltd, Bolton/UK
10:40	**How to deal with orientation-dependent wall friction** D. Schulze, Ostfalia University of Applied Science, Wolfsburg/D; H. Heinrici, Schwedes + Schulze Schüttguttechnik GmbH, Wolfenbüttel/D
11:05	**Hydrostatic yield stress measurement and analyses of aerated powders using a fluidising cone penetrometre** W. Chen, K. Williams, M. Jones, TUNRA Bulk Solids Research Associates, Callaghan/AUS
11:30	**Effect of moisture in iron ore on angle of repose and cargo liquefaction** S. Lommen, A. Miszewski, G. Schott, G. Lodewijks, Delft University of Technology/NL
11:55	**Effect of storage bed height and ambient air relativ humidity on bulk potash cake strength** S. Gao, R.W. Evitts, R.W. Besant, University of Saskatchewan, Saskatoon/CDN
12:20	Lunch Break
13:50	PLENARY LECTURE **Bulk solids handling: an australian perspective** M. Jones, TUNRA Bulk Solids/AU
14:20	Coffee Break and Snacks
	Mechanical Behaviour of Bulk Materials
14:45	**The sensitivity of particle parameters in discrete element modelling of conveyor belt zrajectories** D.B. Hastie, P.W. Wypych, University of Wollongong/AUS
15:10	**Research on new constitutive models for cohesive powder simulation** C. Su, M. Brandley, University of Greenwich, Chatham/UK; K. Perocleous, M. Patel, University of Greenwich, London/UK
15:35	**Prediction of silo-vibrations using a dynamic Lambdameter** S. Jäckel, M. Mütze, U.A. Peuker, TU Bergakademie Freiberg/D
16:00	Closing Ceremony

P1 **Hyperspectral imaging based platforms for particulate solids characterization, inspection and quality control**
G. Bonifazi, S. Serranti, Sapeinza - Università di Roma/I

P 3 **Choosing the optimal silica based flow aid for individual types of bulk solids while maintaining low dust**
C. Drexel, F. Heindl, J. Paul, Evonik Industries AG, Hanau/D

P 4 **Correlation of potash cake strength with storage bed height and ambient air relative humidity**
S. Gao, R.W. Evitts, R.W. Besant, University of Saskatchewan, Saskatoon/CDN

P 5 **Drying and recrystalization proces between two moistened potash particles in contact**
X. Nie, R.W. Evitts, R.W. Besant, University of Saskatchewan, Saskatoon/CDN

P 9 **Direct observation of translation and rotation of granulates under mechanical load**
J. Wenzl, M. Roth, G.K. Auernhammer, Max Planck Institute for Polymer Research, Mainz/D

P 10 **Characterisation of flow properties of coal-petcoke-biomass mixtures for co-firing**
D. Barletta, M. Poletto, Università di Salerno, Fisciano/I

P 11 **Simulation of the transport of RDF particles in an air classifier**
B. Krüger, A. Mrotzek, Fraunhofer UMSICHT, Oberhausen/D; S. Wirtz, W. Arnhold, Lehrstuhl für Energieanlagen und Energieprozesstechnik, Bochum/D

P 12 **Proliferation of dustiness testing methods for bulk materials and the absence of effective correlation between the indices**
P. Wypych, University of Wollongong/AUS

P 13 **Modular archimede's screw. This innovations helps in reducing operation cost and increases efficiency on screw conveyors.**
S. Osmani, EXVENTYS ARCHIMEDYS, Saint Quentin/F

P 14 **Characterization of surface and adsorbate chemistry on TiO_2(100) and (110) surfaces prepared under ambient conditions**
C. Kunze, B. Torun, G. Grundmeier, University of Paderborn/D

P 16 **Incipient motion of a particle on regular substrates in laminar shear flow**
J. Rodríguez Agudo, A. Wierschem, University of Erlangen-Nuremberg/D

P 18 **New possibilities of heating or cooling bulk materials with a bulk solids heat exchanger**
G. Dehm, Coperion GmbH, Weingarten/D

P 19 **Dense flow of granular materials in silos and hoppers: results from a continuum model**
R. Artoni, A. Santomaso, P. Canu, University of Padova/I

P 20 **Characterisation of flowability of cohesive powders by indentation**
U. Zafar, M. Pasha, C. Hare, A. Hassanpour, M. Ghadiri, Leeds University/UK

POSTER PROGRAMME

P 22 **EVO - The new architecture for modern conveying**
G. Bierie, Martin Engineering GmbH, Walluf/D

P 24 **An analysis on pressure drop measurements through fixed and rotary beds of cracked particles of natural zeolite**
M. Çarpinlioglu, E. Özahi, M. Yildirim, University of Gaziantep/TR

P 25 **Grain material treatment taking into account the residence time distribution of nonuniform particles**
V. Dolgunin, O. Ivanov, A. Ukolov, A. Klimov, V. Pronin, Tambov State Technical University, Tambov/RUS

P 26 **An analysis of rolling contact of a spherical particle subject to varying load**
D. Zabulionis, R. Kacianauskas, Vilnius Gediminas Technikal University/LT

P 27 **Effect of the number of grinding media contact points on breakage function for wet grinding**
T. Olejnik, Technical University of Lodz/PL

P 28 **Analysing a two-component mixture in a continuous dynamic powder mixer by using the Fokker-Planck-Equation**
E. Schlosser, Technische Universität München, Freising/D; H. Dauth, Fachhochschule Münster - University of Applied Sciences, Münster/D; K. Sommer, Technische Universität München/D

P 29 **Parallel computations of hopper discharge employing dynamic domain decomposition**
D. Markauskas, A. Kacianuskas, Vilnius Gediminas Technical University /LT

P 30 **Modelling of a spray drying process for flowsheet-based solids process design**
P. Bach, Novozymes A/S, Copenhagen/DK; M.A. Pinto, S.K. Bermingham, Process Systems Enterprise, London/UK

P 31 **Mechanochemistry changes of the calcium carbonate grinding stock under the dry mode of the ultra-fine grinding conditions**
T. Sverak, P. Kejik, Brno University of Technology/CZ

P 33 **Influence of the internal structure of spray-dried ceramic granules on the resulting mechanical properties**
S. Eckhard, M. Fries, M. Nebelung, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden/D; S. Heinrich, S. Antonyuk, Hamburg University of Technology /D

P 34 **Packing and discharging of non-spherical particles in hoppers**
G. Lu, J.R. Third, C.R. Müller, ETH Zurich/CH

P 35 **tionalization and surface modification of spherical glass beads**
Z. Kutelova, Otto-von-Guericke-University Magdeburg /D

P 36 **Evaluation of a semi empirical model for predicting bulk flow properties based on measured particle properties**
R.J. Berry, J. Santana, M.S.A. Bradley, University of Greenwich, Chatham/UK

P 37 **Investigation of the effect of particle size distribution on the flow properties of bulk solids**
J. Santana, R.J. Berry, M.S.A. Bradley, University of Greenwich, Chatham/UK

P 38 **Crystallisation process models for the pharmaceutical industry: efficient workflows for validation against experiments and scale-up.**
S. Bermingham, Process Systems Enterprise Ltd, London/UK; U. Cocchini, GSK, Stevenage/UK

P 39 **The effect of micro/nano particles on the behavior of a suspension fluid droplet**
Y. Ostrovski, A. Levy, Ben-Gurion University of the Negev, Beer-Sheva/IL

P 40 **Sustainable processes for solid and concentrated particulate foods**
M.A.I. Schutyser, Y.S. Lubbersen, P.J.M. Pelgrom, J. Perdana, Wageningen University/NL

P 41 **DEM modelling and experiments on granular flow in silos with internals**
V.P.R. Kasina, J.F. Chen, J.Y. Ooi, University of Edinburgh/UK; H. Wilms, H. Schneider, Zeppelin Systems GmbH, Friedrichshafen/D

P 42 **Online Raman spectroscopy for determination of CNT concentration in polymer/CNT-composite**
V. Guschin, W. Becker, A. Bendfeld, M. Klemenz, Fraunhofer-Institut für Chemische Technologie, Pfinztal/D

P 44 **Comparison between flow cones and a rotary viscometer**
T.F. Buun, M.G. Jones, C. Wheeler, Newcastle University, Callaghan/AUS; G. Wedmore, Bulk FlyAsh Grout, Raymond Terrace/AUS

P 45 **DEM-simulation of a blizzard in a snowstorm globe**
P. Müller, J. Tomas,University of Magdeburg/D

P 46 **Comparison of various damping models for multiple-contact behaviour of particles**
E. Zdancevicius, D. Markauskas, R. Kacianauskas, Vilnius Gediminas Technical University/LT

P 47 **The influence of adsorbed layers on particle adhesion and friction: Insights from adsorption and *in-situ* SFG spectroscopy**
J.Paul, B.Braunschweig, W. Peukert, University of Erlangen-Nuremberg/D

P 48 **In situ measurement of stress distributions in granular materials using neutron diffraction**
C.M. Wensrich, E.H. Kisi, J.F. Zhang, University of Newcastle, Callaghan/AUS

NOTES

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