CONFERENCE PROGRAM

Second International Conference on
Powder, Granule and Bulk Solids:
Innovations and Applications
December 1-3, 2016
Hotel Ramada, Jaipur (Rajasthan), India
Organized by
Department of Mechanical Engineering, Thapar University

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<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Session/Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 0</td>
<td>19:00-21:30</td>
<td>PRE-CONFERENCE NETWORKING DINNER AND REGISTRATION (GALAXY HALL)</td>
</tr>
<tr>
<td>Day 1</td>
<td>8:00-8:30</td>
<td>REGISTRATION (OUTSIDE JUPITER HALL)</td>
</tr>
<tr>
<td>Day 1</td>
<td>8:30-8:50</td>
<td>WELCOME ADDRESS (JUPITER HALL): S.S.Mallick and Thapar University Officials</td>
</tr>
<tr>
<td>Day 1</td>
<td>8:50-9:25</td>
<td>SESSION A1 (JUPITER): KEYNOTE LECTURE SERIES, Session Chair: Haim Kalman, Co-Chair: Baldeep Kaur</td>
</tr>
<tr>
<td>Day 1</td>
<td>9:25-10:00</td>
<td>From discrete particle simulations towards continuum theory and applications in transport and segregation, Stefan Luding, University of Twente, The Netherlands</td>
</tr>
<tr>
<td>Day 1</td>
<td>10:00-10:35</td>
<td>Particle engineering for pharmaceutical applications, Rajesh Dave, New Jersey Institute of Technology, USA</td>
</tr>
<tr>
<td>Day 1</td>
<td>10:35-11:05</td>
<td>SESSION A2 (JUPITER): SIMULATION OF PARTICLE PROCESSES, Session Chair: Stefan Luding, Co-Chair: Baldeep Kaur</td>
</tr>
<tr>
<td>Day 1</td>
<td>11:05-11:30</td>
<td>Numerical investigation of particle velocity and its influence on modelling pressure drop during fluidized dense phase gas-solids transport of fine powders, Baldeep Kaur, Anu Mittal, Peter Wyppych, S.S.Mallick and Soumendu Jana, Thapar University, India, University of Wollongong, Australia</td>
</tr>
<tr>
<td>Day 1</td>
<td>11:55-12:20</td>
<td>Hybrid Eulerian/Lograngian simulation of agglomeration in gas-solid cyclones, Stefan Pirker, Stefan Puttiger and Simon Schneebauer, Johannes Kepler University, Austria</td>
</tr>
<tr>
<td>Day 1</td>
<td>12:20-12:45</td>
<td>Sensitivity of numerical parameters on DEM predictions of sediment transport, H. A. Elghamawy and Danel K. Tafts, Virginia Tech University, USA</td>
</tr>
<tr>
<td>Day 1</td>
<td>12:45-13:10</td>
<td>Numerical and experimental study of compression strength of pharmaceutical granules, Zdenek Grof, Marek Schongut, David Smrcka and Frantisek Stepanek, Veronika Leskova, University of Chemistry and Technology, Czech Republic</td>
</tr>
<tr>
<td>Day 1</td>
<td>13:10-14:10</td>
<td>LUNCH (OUTSIDE JUPITER HALL) + EXHIBITION</td>
</tr>
<tr>
<td>Day 2</td>
<td>14:25-14:50</td>
<td>Product development and process optimization strategies for encapsulation applications - a comparative case study using different formulation and processing options, Michael Jacob, Melanie Gutzeit, Katja Oppermann, Anja Teiweis, Giatt Ingenieurtechnik GmbH, Germany</td>
</tr>
<tr>
<td>Day 2</td>
<td>14:50-15:15</td>
<td>Discrete element modeling and the technology adoption curve for computer-aided engineering software, Richard LaRoche, DEM Solutions Ltd, UK</td>
</tr>
<tr>
<td>Day 2</td>
<td>15:15-15:45</td>
<td>Identification of particulate metal oxides using energy-resolved distribution of electron traps measured by reversed double-beam photoacoustic spectroscopy, Bunsho Ohtani, Hokkaido University, Japan</td>
</tr>
<tr>
<td>Day 2</td>
<td>15:45-16:25</td>
<td>SESSION B2 (MARS): PARTICLE SYNTHESIS, CHARACTERIZATION &amp; PROCESSING, Session Chair: Russo Ohtani, Co-Chair: Tanushree Basu</td>
</tr>
<tr>
<td>Day 2</td>
<td>16:25-16:50</td>
<td>Bulk properties of the instant beverages powders as the function of quality of the powders, Tomas Sverak, Ondrej Kristof, Pavel Bulejko, Pavel Kekj CsislaBogvy, Josef Kalivoda and Katerina Mayerova, Brno University of Technology, Brno, Czech Republic</td>
</tr>
<tr>
<td>Day 2</td>
<td>16:50-17:15</td>
<td>On time scales and rheology of dry and wet granular materials, Sudestna Roy, Stefan Luding and Thomas Weinhart, University of Twente, The Netherlands</td>
</tr>
<tr>
<td>Day 2</td>
<td>17:15-17:40</td>
<td>Characterization of pharmaceutical powders – static and dynamic flow properties, Veera Pratap R. Kasina, Hussain Ali M. Sanjay R. Sharma, Ajinkya Bhasme, Ravichandra Palaparthi, Dr. Reddys Laboratories Limited, India</td>
</tr>
<tr>
<td>Day 2</td>
<td>17:40-18.05</td>
<td>Numerical study of powder compaction under monotonic and cyclic loading, Oulakuyode I. Imole, Steph Bredenbahn, Vanessa Magnanimo and Stefan Luding, University of Twente, The Netherlands, Delft University of Technology, Delft, The Netherlands</td>
</tr>
<tr>
<td>Day 2</td>
<td>18.05-18.30</td>
<td>Flow improvement of fine propellant powder using nano additives, Kritika Dixit, Sophia Varghese, Ashish Jauhari, S.C. Bhattacharyya, Chinmay Ghoroi, IIT Gandhinagar, India</td>
</tr>
<tr>
<td>Day 2</td>
<td>18:30-20.30</td>
<td>Latest developments in handling, conveying and dust control technology, Peter Wyppych, University of Wollongong, Australia</td>
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</tbody>
</table>

**SECOND INTERNATIONAL CONFERENCE ON POWDER, GRANULE AND BULK SOLIDS: INNOVATIONS AND APPLICATIONS (PGBSIA 2016), HOTEL RAMADA, JAIPUR, INDIA, December 1-3, 2016**
10.45-11.10 Session Chair: S.S. Mallick, Co-Chair: Anu Mittal
An investigation into pressure fluctuations for fluidized dense-phase pneumatic conveying of powders, Anu Mittal and S.S. Mallick, Thapar University, India
Numerical evaluation on inertial migration and ordering of rigid particles in microchannels, Hirotsake Udono and Mikko Sakai, University of Tokyo, Japan
Evolution of contact anisotropy in a granular assembly, Akhil Vijayan Panicker, Ratna Kumar Annabattula, IIT Madras, India
11.10-11.35 Session Chair: Richard LalRochhe, Co-Chair: Atul Sharma
A case study on implication of stipulation by ministry of environment and forest (MOEF) on selection of ash conveying system in coal fired power plants in India, Debashish De, Development Consultant Private Limited, India
Analyses of dust emission in bulk material handling apparatus by DEM-CFD: basics, approaches and prospects, Christoph Grubler, Franz Kessler, Michael Penner and Thomas Sommer, Montanuniversit\'at Leoben, Austria
Experimental investigation on drying characteristics of Geldart group B and group D particles in a fluidized bed dryer, D Yogendrasasidhar, G Srinivas and Y Pydi Setty, NIT Warangal, India
11.35-12.00 Session Chair: Dmitry Portnikov, Haim Kalman, Roman Peisakhov, Gabriel Ofek Gabriel
The effect of collision angle on the particle breakage under impact loads, Dmitry Portnikov, Haim Kalman, Roman Peisakhov, Gabriel Ofek Gabriel, Ben-Gurion University of the Negev, Israel
Three-dimensional Lagrangian simulation for a solid-liquid flow in a chemical engineering process, Kazuya Takabatake, Mikio Sakai, Midori Uchiyama, Hiroaki Fujiwara, The University of Tokyo, Japan, IHI Corporation, Japan
Drying of coriander seeds in a wall heated fluidized bed dryer, M Vamsi Krishna, G Srinivas and Y Pydi Setty, NIT Warangal, India
12.00-12.25 Session Chair: Mahesh Edirweera, Chandana Ratnayake and Jana Chladek, University College of Southeast Norway
Review of impact erosion of pneumatic transportation pipelines, Mahesh Edirweera, Chandana Ratnayake and Jana Chladek, University College of Southeast Norway
Studying cohesive powder flow using discrete element method: an investigation into contact micro-mechanics and link to bulk behaviour, Rahul Mohanty, Prashant Gupta, Jin Y. Ooi, Luis Martin de Juan, Tom\'a\' M. Zorc, University of Edinburgh, Scotland, UK; University of Lubli\'ana, Slovenia
Computational fluid dynamic investigation on transition of Geldart powders from Group A to B, Priya C. Sande and Saumii Ray, BITS, Pilani, India
12.25-12.35 Session Chair: Marnix van Schrojenstein Lantman, Anthony R. Thornton, Deepak U. Pujari, Akihito Kiyama, University of Tokyo, Japan
Lunch (outside JUPITER hall) + Exhibition
13.25-14.00 Session Chair: Wolfgang Peukert, Co-Chair: Anu Mittal
Application of mesoscale discrete element method for bulk solids handling processes, Jin Y. Ooi, University of Edinburgh, UK
14.00-14.35 Advanced discrete element simulation for industrial applications, Mikio Sakai, The University of Tokyo, Japan
14.35-15.05 Session Chair: Jin Y Ooi, Co-Chair: Baldeep Kaur
An experimental and theoretical investigation of TiO\(_2\) powders flow properties changes with temperature, Domenico Mazzi, Massimo Poletto, Diego Barletta, Stephen Sudcliffe, Paola Lettieri, University College London, UK, Universit\'e degli Studi di Salerno Italy, Huntsman Pigments and Additives, UK
Improving the wettablility of ibuprofen drug using co-milling technique, Sophia Varghese and Chinmay Ghori, IIT Gandhinagar, India
Modelling solids friction factor and minimum transport boundaries for dense-phase pneumatic conveying of powders, S.S. Mallick, Thapar University, India
15.05-15.30 Session Chair: Bunsho Ohtani, Co-Chair: Tanushree Basu
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Modelling solids friction factor and minimum transport boundaries for dense-phase pneumatic conveying of powders, S.S. Mallick, Thapar University, India
15.30-15.55 Session Chair: Tanushree Basu
Numerical simulation and experimental validation of yielding for cohesive dry powder, H. Shi, A. Singh, S. Luding and V. Magnanini, University of Twente, The Netherlands, City College of New York, USA
Removal of Pb\(^{2+}\) and Cu\(^{2+}\) by Metal Oxide Monoliths with Tuneable Mesopore Size: Kinetic and Equilibrium Modelling, Manisha Sharma, Soumen Basu, Thapar University, India
One-dimensional erosion modeling for conveying pipelines, Avi Uzi, Yaron Ben Ami and Avi Levy, Ben-Gurion University of the Negev, Israel
15.55-16.20 Session Chair: Tanushree Basu
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One-dimensional erosion modeling for conveying pipelines, Avi Uzi, Yaron Ben Ami and Avi Levy, Ben-Gurion University of the Negev, Israel
16.20-16.45 Session Chair: S.S. Mallick, Co-Chair: Anu Mittal
Flowability of ceramic powders in the sintering process, Daniela Sofia, Diego Barletta, Massimo Poletto, Universit\'e degli Studi di Salerno, Fisciano (SA), Italy
Polymorphism, particle formation pathways and long term colloidal stability of curcumin nanoparticles precipitated by liquid antisolvent technique, Sameer V. Dalvi, IIT Gandhinagar, India
Dry beneficiation of mineral in cyclonic classifier, Amit Sharma, B. Pitchumani, Vikram Golphcha, Golcha Global Solutions, Jaipur, IIT Delhi, Associated Soapstone, Jaipur, India
16.45-17.10 Session Chair: S.S. Mallick, Co-Chair: Anu Mittal
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Dry beneficiation of mineral in cyclonic classifier, Amit Sharma, B. Pitchumani, Vikram Golphcha, Golcha Global Solutions, Jaipur, IIT Delhi, Associated Soapstone, Jaipur, India
17.10-18.00 Session Chair: S.S. Mallick, Co-Chair: Anu Mittal
A multi-method approach to quality control illustrated on the industrial powder coating process, Elke Riedl, Dennis Schütz, Anton Paar GmbH, Graz, Austria
Influence of nanoscale roughness on surface energy and wettability of surface modified glass beads, Deepa Dheit and Chinmay Ghori, IIT Gandhinagar, India
Development of High Concentration Slurry Disposal System (HCSD) in power plant, Sunil Kumar Gosh, Development Consultants Private Ltd, Kolkata, India
18.00-18.30 Conference Dinner at Chowki Dhani Resort (with a trip to the Cultural Show at Chowki Dhani Village)
SESSION A5 (JUPITER): FLOW PROPERTIES OF BULK SOLIDS  
Session Chair: Rajesh Dave, Co-Chair: Baldeep Kaur

10.10-10.35 Effect of gum arabic, bamboo fiber and cactus cladode mucilage on physicochemical and antioxidant properties of orange pulp powder, Consuelo Pacheco, Juliana Piña, Mónica Nazareno, Eva García-Martínez, Gemma Moraga and Nuria Martínez-Navarrete, Planta Piloto de Ingeniería Química (UNIS – CONICET), Centro de Investigación y Transferencia de Santiago del Estero (UNSE – CONICET), Argentina, Universitat Politècnica de València, Spain

A parametric study on response of granular bed to vertical sinuosoidal excitations, Anand Moorthy, Shankar Krishnapillai, Ratna Kumar Annabattula, Department of Mechanical Engineering, Indian Institute of Technology, Madras, Chennai, India

10.35-11.00 Comparison of mechanical properties of ground corn stover, switchgrass, and willow and their pellet qualities, Apoorva Karamchandani, Hojae Yi, and Vinendra M. Puri, the Pennsylvania State University, USA

Multi-objective optimization of gas cyclone using computer models and response surface methodology, Lakshir Singh Brar, B.I.T. Mesra, Ranchi, India

11.00-11.25 Merging fluid and solid granular behavior, D. Verscio and S. Luding, Politecnico di Milano, Italy, University of Twente, The Netherlands

Aging in velocity autocorrelations in granular gas of viscoelastic particles in 3-dimensions, Shikha Kumari and Syed Rashid Ahmad, Jamia Millia Islamia, New Delhi, India

11.25-11.50 Granule breakage in a controlled shear field, Narendra Akhti, Karen Haagood and Devang Khakhar, IIT Bombay, India, Monash University, Melbourne, Australia

Modelling granular systems with pebble plasticity using discrete element method, Raghuram Karthik Desu and Ratna Kumar Annabattula, IIT Madras, India

11.50-12.15 Fluidized bed rheology for granular media, Denis Schütz, Elke Riedl, Anton Paar GmbH, Graz, Austria

Quantitative DEM validation of flow of pellets in a flat bottom silo, Veera Pratap R Kasina, Jin Y Ooi, Jian-Fei Chen, Hans Schniedier, Dr. Reddys Laboratories Limited, India, University of Edinburgh, UK, Queen’s University, UK, Zeppelin Systems, Germany

12.15-12.35 LUNCH (OUTSIDE JUPITER HALL) + EXHIBITION

SESSION 6K (JUPITER): KEYNOTE LECTURE SERIES, Session Chair: Mikio Sakai, Co-Chair: Baldeep Kaur

13.15-13.50 Morphological effects of different bimetallic nanostructures, Bonamali Pal, Thapar University, India

13.50-14.15 A dilution driven vortex in dense granular materials and its effect on rheometry, Prabhujit Nott, Indian Institute of Science, Bangalore, India

13.45-14.55 HIGH TEA (OUTSIDE JUPITER HALL)

SESSION A6 (JUPITER): BULK SOLIDS HANDLING  
Session Chair: Mikio Sakai, Co-Chair: Kapil Sharma

14.55-15.20 The effect of converging vortex finders on the performance of cyclone separators, V. Kumar, L. S. Brar, K. Jha, ISM, Dhanbad, B.I.T, Mesra, India

Heavy metal accumulation from fly ash by algae for its potential utilization, Rajinder Kaur and Dinesh Goyal, Beant College of Engineering & Technology, Punjab, India, Thapar University, India

15.10-15.45 Initial acceleration pressure drop in dilute phase pneumatic conveying system, Naveen Mani Tripathi, Avi Levy and Haim Kalman, Ben-Gurion University of the Negev, Israel

Population balance modeling of emulsification process using high pressure homogenizer, Sagarika Tall, A. Naga Divya Sree, Bithunshal U.B and Vikrantlyumar Surasani, BITS Pilani, Hyderabad, India

15.45-16.10 Mixing analysis and modeling of solids friction factor for fluidized dense phase conveying through long pipelines, Shijo S. J., Niranjana Behera, VIT University, Vellore

Mixing study of binary cohesive fine powders in a 2D rotary drum, Abhishek Sancheti, Sanjay Saroj, Neetu Varun, Chhinmay Ghoro, IIT Gandhinagar, India

16.10-16.35 PSD analysis of pressure drop fluctuation in dilute phase pneumatic conveying system, Ajay B. Makwana, Atharva Patankar, Sagar Patil and Mansawata Bose, IIT Bombay, India

Hydroclorionate classifier to beneficiate kaolin clay, Vivek Vetturi and Girish Dharan, B. Pitchumani, Vikram Golicha, Golicha Global Solutions, Jaipur, IIT Delhi, Associated Soapstone, Jaipur, India

16.35-17.00 In investigation into modelling pressure drop through bends for fluidized dense phase of pneumatic conveying of fine powders, Amit Kumar, Atal Sharma and S.S.Mallick, Thapar University, India

Granule segregation in a quasi 2D System during heap formation, Sandip H. Gharat, Ghada Institute of Technology Lavel, Ratnagiri, India

17.00-17.20 CONFERENCE CLOSURE (JUPITER HALL): Memento distribution, future event announcements and closing remarks (S.S.Mallick)