



The PTF Newsletter

THIS YEAR'S PTF AWARDS

Each year we honor those who have shown distinction and leadership in particle technology. These individuals are nominated by their peers with at least three supporting letters and then vetted by a team of previous awardees. This year's recipients of the PTF Awards are as follows:

GEORGE KLINZING BEST PHD IN PARTICLE TECHNOLOGY. This award recognizes an outstanding dissertation by an individual who has earned a doctoral degree under the criteria of an outstanding original dissertation with relevance to particle technology in the last three calendar years. This year's recipient is Prof. Asep Nandiyanto for his work on developing methods for fabricating materials with controllable nanostructure in liquid phase. He received his PhD under the advisory of Prof. Kikuo Okuyama at Hiroshima University.



PARTICLE TECHNOLOGY FORUM AWARD. This award recognizes a forum member's lifetime outstanding scientific/technical contributions to the field of particle technology, as well as leadership in promoting scholarship, research, development, or education in this field. This year, the PTF Award goes to Karl Jacob from The Dow Chemical Company for outstanding career-long contributions in advancing solids processing technology through excellence in industrial R&D, commercial implementation, leadership of the profession, and the education of future engineers.

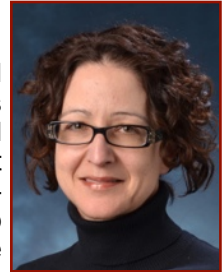


SHELL GLOBAL SOLUTIONS THOMAS BARON AWARD. This award recognizes an individual's recent outstanding scientific/technical accomplishment which has made a significant impact in the field of fluid-particle systems or in a related field with potential for cross fertilization. This year, the recipient



of the Thomas Baron Award goes to Distinguished Professor Jennifer Sinclair Curtis from the University of Florida. Prof. Curtis is being recognized for her outstanding contributions in both CFD and DEM modeling of dilute and dense fluid-particle flows, with application to a wide variety of fluidized processes.

PARTICULATE SOLID RESEARCH, INC. (PSRI) LECTURESHIP IN FLUIDIZATION AWARD. This award recognizes an individual's outstanding scientific/technical research contributions with impact in the field of fluidization and fluid-particle flow systems. The Group 3B nomination committee (Fluidization and Fluid Particle Systems) has given this award to Prof. Christine M. Hrenya of the University of Colorado at Boulder in recognition of her significant contributions to the fundamental understanding of fluid-particle systems that have resulted in her models being incorporated into a number of commercial and open-source codes.



PARTICLE TECHNOLOGY FORUM SERVICE AWARD. This is the PTF's newest award and is given to those individuals who have shown unparalleled dedication to the AICHE and PTF. This year's recipient of the PTF Service Award goes to Prof. Christine M. Hrenya of University of Colorado at Boulder. Prof. Hrenya has dedicated countless hours as Chief Editor for the PTF Newsletter in addition to her work with the PTF Executive Committee. She has stepped down as of this year and Dr. Ray Cocco and Dr. Shrikant Dhodapkar have taken over the editorial responsibilities.

The PTF is honored to recognize all these individuals and we wish to continue to do so for all those who show inspiration and leadership in particle technology. Please remember those nominations and contribute to next years awardees. In addition, thank you to all our award sponsors that make this recognition possible.

Atlanta '14 Salt Lake City '15 San Francisco, '16

SAVE THE DATE
2014 AICHE Annual Meeting
November 16 through 21, 2014
Atlanta Marriott Marquis and Hilton Atlanta
Atlanta, Georgia, USA



PTF Dinner - Don't Miss It
Thrive - Renowned architect Bill Johnson brings in a unique blend of sleek contemporary style to this trendy eatery.
Wednesday, November 19th, 2014
Cost is \$85
15 minute walk from conference

KNOW FLOW'S
KORNER**CURRENT RESEARCH ACTIVITIES IN BULK SOLIDS OUTSIDE UNITED STATES**

George Klinzing (University of Pittsburgh, PA, USA)
Sbrikant Dhodapkar (The Dow Chemical Company, USA)
Lyn Bates (Ajax Equipment, UK)
Hararld Wilms (Zeppelin, Germany)

To gain a perspective of research activities in bulk solids handling and processing outside the US, we have compiled information from various sources. The scope of this review is limited to bulk solids handling and does not include fluidization processes, granular flow or solids processing.

Europe

Europe has a rich history in particle technology. Various universities, especially in Germany, UK, Norway, Netherlands and France, have contributed generations of particle technologists who are well known in industry and academia.

Powder technology developed in the United Kingdom following the visit of Andrew Jenike to Bradford University in 1967 for a conference on Bulk Solids organized by John Williams. This set off a flurry of academic interest in a subject ripe for exploration. Bradford instituted a School of Powder Technology and a School of Particle Technology was set up at Loughbough under Brian Scarlet, followed by groups at the Universities of Woolwich, Glasgow, Surrey, Birmingham, Leeds, Edinburgh, Cambridge and smaller sections at Bath and others. The Government formed a research establishment called Warren Springs Laboratories at Stevenage that complemented sterling work undertaken on the subject at BCURA, the British Coal Users Research Association.

An astute student, Abraham Goldburgh initiated an annual Exhibition and Conference named 'Powtech' that resulted in the co-ordination of equipment manufacturers serving this industry into a coherent body that established traded associations of MHEA (Material Handling Engineers Association) and SHAPA (Solids Handling and Processing Association). The Institution of Chemical Engineers took an interest through a Particulate Solids Interest Group and publications whilst the Institution of Mechanical Engineers formed a Bulk Solids Handling Committee which ran various seminars and international conferences. The British Materials Handling Board (BMHB) was formed and quickly recognized the dominant role of solids handling in industry.

The Government's and some Universities' interest waned, as the program did not evolve fast enough to give the breakthroughs expected and many technical challenges of particulate solids proved elusive to resolve. Cut-backs, internal politics and mild disillusionment reduced some Universities' activities,

but the Wolfson Centre, based in Greenwich University, expanded its relationship with the industry. At the same time, the Leeds University developed a strong research group. Mike Rotter at Edinburgh developed many written standards and Jonathan Seville at Birmingham edited the Elsevier publication, 'Powder Technology' for many years. A second generation of interest is creeping back as the Government and Universities have come to appreciate the vast scale of the industrial effect and the virtues of nanotechnology.

The research work on bulk solids handling in Germany started with the fundamental work of H.A. Janssen in 1895 with his ground-breaking approach for calculation of pressures in grain silos. The well-known Janssen-formula is still the foundation of many codes on structural silo design. After the second world war, research in Germany on bulk solids handling was activated through Andrew Jenike's introduction of his shear tester. The first shear tester was located at Prof. Hans Rumpf's Institute of Mechanical Process Technology of the Karlsruhe Technical University. His student, Jörg Schwedes, conducted extensive investigations on shear testing. After having established shear testing in Germany's chemical industry through his assignment (jointly with Lambertus ter Borg). At Bayer, he became a professor at T.U. Braunschweig. Based on his work in Karlsruhe, he and his team developed various shear testing devices, such as the Simple Shear Apparatus, the True Biaxial Tester and the Triaxial Shear Box, as well as silo centrifuge. His latest research focused on a new design method against funnel flow that considered the anisotropy of bulk solids. Jörg Schwedes's group from Braunschweig, is now being headed by Prof. Arno Kwade. Initially, the German silo design standard DIN 1055 part 6 did not consider any aspects of flow or flow patterns, but jointly with Prof. Klaus Pieper and his structural silo design group, a lot of data on pressures in silos and asymmetric flow conditions have been generated and turned into design rules. Additional aspects on blending silos resulted from work at Waeschle (today Coperion) by Wolfgang Krambrock and Hans Hoppe, as well as from work by Zeppelin on blending and degassing silos by Harald Wilms and Hans Schneider.

Two-phase flow in the meaning of pneumatic conveying of solids also emanated from the Karlsruhe Technical University, with basic work by Prof. Walter Barth, followed in academia and industry by Matthias Böhnet, Hermann Möller, Erich Muschelknautz, Wolfgang Krambrock, Manfred Weber and Wolfgang Siegel.

The research work on bulk solid handling in former East Germany focused around mining engineering in Freiberg (Prof. Heinrich Schubert), around structural design issues in Weimar (Prof. Hampe) and around agricultural issues at Potsdam (Christian Füll). A large



translational shear tester was developed in Freiberg by Detlef Höhne and Jürgen Tomas, who is now a Professor at Magdeburg. They developed physical models for time consolidation of bulk solids. Today, Prof Tomas is engaged in research work regarding vibrations and their influence on discharge behavior from silos.

A lot of industrial application engineering is being performed by Prof. Dietmar Schulze – author of the comprehensive book “Powder and Bulk Solids” – and his colleague Harald Heinrici. Prof. Karl Sommer at the Technical University of Munich has focused his research work on agglomeration. The work of powder mechanics was deeply analyzed by Prof. Otto Molerus in Erlangen. Today, particulate mechanics are more studied by means of DEM at various universities, especially Magdeburg. DEM calculations for pressure calculations have been preceded by the approach of Prof. Josef Eibl and his team at Karlsruhe Technical University of using FEM to calculate pressures, and especially the transition from filling to discharging. The research center at Karlsruhe also revealed, through the work of J. Tejchman, the nature of instationary vibrations occurring during flow – which formed the basis of no-honking design of silos (Schulze, Wilms).

Another research center for solids handling has developed at the Technical University Hamburg-Harburg around Prof. Stefan Heinrich and Sergiy Antonyuk, focusing on particle technology. German researchers have been deeply involved in various activities of the EFCE's WPMPs, especially in running comparative shear tests, developing the “SSTT” as the first international shear testing procedure and in comparison of silo pressure calculation codes.

Some notable research groups in Europe working in bulk solids handling are as follows:

- Wolfson Centre for Bulk Solids Handling Technology, London (Michael S.A. Bradle): The Wolfson Centre is a part of the University of Greenwich in London. They provide a wide array of services from consultancy, research, short courses and expert witnesses. Their constancy deals with troubleshooting, material characterization and assessment, system selection and design, and other topics. They offer a wide variety of short courses from overview to survey courses in particulate handling to dust explosion, biomass handling and pneumatic conveying. They have a blend of academic and industrial talent for their expertise.
- The Centre for Industrial Bulk Solids, Glasgow, Caledonian University (Donald McGlinchey): GCU's Centre for Industrial Bulk Solids Handling is a specialist research centre and education provider in the area of particulate solids handling, delivering Masters-level programmes, educational short

courses and consultancy to resolve particulate solids handling problems within industry. Clients have included Scottish Power, Lafarge Plasterboard, Stable Micro Systems and Doosan Babcock. GCU houses one of the few independent research facilities for pneumatic conveying and solids handling worldwide. Industrial scale pneumatic conveying systems are used for a wide range of consultancy and contract research and development. Pneumatic transportation of bulk solids continues to be important in many industrial processes. There is a need for accurate, reliable, on-line, continuous and non-invasive measurement of solids' mass flow rate where mass and energy balances are required in industrial, pharmaceutical and commodity transfer processes in order to achieve efficient utilization of energy and raw materials.

- Tel-Tek -Porsgrunn, Norway (Chandana Ratnayake): A powder science and technology centre, Tel-Tek was created on the Porsgrunn Campus at Telemark University College in Norway. Initially it was to serve the aluminum industry, but grew into a research and educational establishment for bulk technology. Projects include studies on flow patterns in silos and the effect of inserts, work on segregation, and the construction of test devices for measuring unconfined failure. A number of 'Relpowflo' international conferences have been held and the group offers regular seminars on various aspects of bulk technology.
- University of Padova, Italy: Prof. Paolo Cann is active on dense granular flow, with applications on mixing, 'flowability', discharge processes, sampling and on-line characterisation.
- National Food Science & Engineering State School, France: Prof. Jean Luc Ilari has interests in the behaviour of food powders in mechanical and thermal processes, sampling and mixing.
- Moscow State University of Environmental Engineering, Russia: Prof. Anatolymov is a specialist in and feeding the storage of solids with interests in the handling of biomass and natural fuels.
- The University of Twente, Holland: Following the strong in bulk solids technology with pioneers like F.J.C.Rademacher, the current work by Dr. Rer. Nat Stefan Lunden, Prof. for particle technology, is centered on numerical and theoretical modeling of kinetic particulate systems, micro-macro strategy for

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granular systems, material properties, transport processes and spin order in granular systems and micro-polar continuum theory.

- University of Salerno, Italy: Prof. Massimo Poletto's research is focused on bulk solids handling and Fluidisation.
- Katholieke Universiteit, Leuven, Belgium: Dr. Bert Tijsskens has research interests in mathematical and finite element modelling and scientific computing, continuum mechanics and large deformations, non-linear materials, biomechanics, contact/impact and moving boundaries and engineering software.
- Technical University of Ostrava, Czech Republic: Prof. J. Zegzulka has particular interests in practical measuring and modelling of bulk solids properties as well as flow parameter measurements in flow and inaction, including flow patterns, pressure distributions and flow dynamics.
- Institute for Particle Technology, T.U.Braunschweig, Germany: After Prof. Schwedes's retirement, Prof. Dr.-Ing A. Kwade now leads the Institute. Their primary research interests are grinding, dispersing and coating, nanoparticles and nanocomposites, battery process engineering, bulk solids and granular matter as well as bio- and pharmatechnology.

Australia

At the University of Newcastle, the founding researchers in solids processing are Laureate Professor Graeme Jameson and Emeritus Professor Alan Roberts. Both have had long and esteemed careers with the University of Newcastle. Roberts arrived as Professor of Industrial Engineering in 1974, and Jameson as Professor of Chemical Engineering in 1977. They have been recognized with the Order of Australia awards and have received the prestigious Peter Nicol Russell Memorial Medal from the Institution of Engineers Australia for outstanding service to their profession.

Prof. Roberts was responsible for the University of Newcastle developing what has become an important concentration in bulk materials handling. He established TUNRA Bulk Solids Handling as a research group and commercial consultancy in 1975. Since then, it has completed more than 4,000 projects for clients in 40 countries and has made an invaluable contribution to research in the field. Professor Mark Jones joined the University of Newcastle approximately 15 years ago from Glasgow Caledonian University and he expanded TUNRA's activities overseas. He lectures extensively and his work in pneumatic conveying is quoted internationally.

Jameson was already a respected expert in fluid mechanics when he came to prominence in the 1980's with his invention of the Jameson Cell. A froth flotation device for recovering fine mineral particles from mine

waste and low-yield sources, it was smaller, faster and more precise than existing technology and was quickly accepted up by the industry.

Roberts obtained his engineering degree from the University of Wollongong and did considerable research there with Professor Peter Arnold before moving to Newcastle. Professor Peter Wypych joined the University of Wollongong and continued working with Professor Arnold after Professor Roberts moved to Newcastle. While Professor Arnold is now retired from the University, he continues to make important contributions to the field. Prof. Wypych continued the research in solids processing especially in pneumatic conveying at Wollongong. It is interesting that Professor Judy Raper is now the Deputy Vice Chancellor for Research at the University of Wollongong. Professor Raper made a name for herself in solids processing at the University of Sydney, the University of New South Wales and the University of Newcastle. She was named the Dean of Engineering at the University of Sydney. Professor Raper is known for her work on particle technology and characterization of fine particles with relation to pollution control and industrial processes.

- Bulk Materials Engineering (BME), University of Wollongong, Australia (Peter Wypych): BME Australia is a licensed consultancy of the University of Wollongong that deals with design and solution for bulk material handling in a wide sector of industries from mining to pharmaceuticals. BME does contact research, consultancies and scientific research. This organization is ideally suited for the powder and bulk materials handling of the Faculty of Engineering and Information Science which can facilitate technology transfer between the University and industry.
- TUNRA – University of Newcastle, Australia (Mark G. Jones, Alan Roberts): TUNRA is a part of the University of Newcastle, Australia is providing solutions to industrial problems in the bulk material industries from handling to storage application. TUNRA has a comprehensive laboratory testing program and a team of engineers and consultants to interact with industry. They are divided into three groups:
 1. Bulk materials and materials handling equipment testing
 2. Storage, flow and handling consultancy
 3. Bulk storage system conceptual design.

South America

- Jenike & Johanson, Chile (Francisco J. Cabrejos): The most important sector in the Chilean economy is by far the mining industry, which contributes about 50% of total Chilean exports. Copper, the most important product exported by Chile, represents 35% of the total Chilean exports alone,

IN MEMORIAM PROF. LIANG-TSENG "LT"
FAN,

Professor at Kansas State University

and reached 5.7 million tonnes in 2013, which represents approximately 1/3 of the total world production. Materials handling plays a critical role in the Chilean mining industry which also exports other valuable raw materials and minerals such as precious metals (gold and silver), iron, potassium and sodium nitrates, salt, molybdenum, lithium, etc. The scale of these giant mining operations is enormous and the proper design of material handling systems is clearly of paramount importance. These plants are always seeking techniques to increase productivity, and energy savings, to reduce labor and maintenance to cut costs, while minimizing environmental impact. Bulk materials handling has proven to be a key area within mining operations to prevent flow problems and assure the necessary surge storage capacity and throughputs.

Japan

Nagoya University was the center of Powder Technology with Professor Inoyue as the founder and leader. He amassed a large research groups covering a wide number of subjects similar to Karlsruhe in Germany. Kunii (Levenspiel's collaborator) and Kono worked at Nagoya, and worked extensively in fluidization studies. At the University of Osaka Professor Morikawa began powder technology related to flowing media. He did advanced study in Germany and used the principles of aerodynamics to expand into pneumatic conveying. Prof. Tsuji worked with him and Tsuji's successor is Prof. Tanaka. Professor Masuda at University of Kyoto did extensive research on electrostatics and Ko Higashitani had an active research program in particle characterization and pharmaceuticals. Both are now retired. Masa Horio at the Tokyo University of Agriculture and Technology has been very active in the fluidization field.

There has been powder technology at Kyshu Institute of Technology with Professor Tomita being the main contributor.

University of Osaka, Professor Yukata Tsuji : There are four organizations related to bulk solid processing.

- 1.The Society of Powder Technology, Japan (SPTJ)
- 2.The Association of Powder Processing and Engineering, Japan (APPIE)
- 3.Hosokawa Powder Technology Foundation
- 4.The Information Center of Particle Technology, Japan (ICPT)

SPTJ organizes academics, and APPIE companies. The founder of both organizations was the late Professor Koichi Inoya. This history makes the relationship between SPTJ and APPIE very deep. They collaborate in many respects. Hosokawa Foundation is supported by Hosokawa Micron Corporation and ICPT by Nisshin Engineering INC. Hosokawa Foundation and ICPT provide grants for university researchers.

Dr. Liang-tseng "L.T." Fan, age 84, of Manhattan, Kansas, died August 4, 2014. Dr. Fan had been instrumental in securing funding for the construction of Durland Hall while he was Head of the Department of Chemical Engineering.



He was born on August 7, 1929, in Taiwan, the son of Chung-chan and Chien-moi Fan and had been a Manhattan resident since 1958. On June 2, 1958, he was united in marriage to the former Eva S. Cheung. She preceded him in death earlier this year on April 12, 2014.

A native of Taiwan, Dr. Fan received a B.S. from National Taiwan University (1951), an M.S. from Kansas State University (1954), and a Ph.D. from West Virginia University (1957), all in Chemical Engineering, and an M.S. in Mathematics from West Virginia University (1958). He returned to the Department of Chemical Engineering at Kansas State as Instructor in 1958, became Full Professor in 1963, served as Department Head for 30 years beginning in 1968, and was appointed University Distinguished Professor in 1984.

Dr. Fan was the Mark H. and Margaret H. Hulings Chair in Engineering, and the Director of the Institute for Systems Design and Optimization at Kansas State University. Dr. Fan was also Managing Partner, Solidwaste Technology, L. P., President of Liquefied Fossil Fuels Corporation, President of Heartland Composites Development Corporation, and President of The SF Materials Corporation.

In addition, Dr. L. T. Fan was Co-Chairman (Research and Development) of Green Source Holdings LLC and developed the patented technology behind the company. As Co-Chairman, Dr. Fan oversaw the company's continuing R&D efforts to expand the use of the technology in hydrocarbon extraction.

Dr. Fan has authored or coauthored seven books, some of which have been translated into foreign languages, several hundred refereed journal articles; and many non-refereed articles. He is credited with 17 patents. Dr. Fan's publications are widely referenced as evident from more than 6,000 citations listed in Science Citation Index.

Dr. Fan has received numerous awards and honors. He was a Fellow of the American Institute of Chemical Engineers and the American Association for the Advancement of Science.

He is survived by his son, Tso Yee Fan and his wife Deborah Haley, his daughter, Judith Fan and her husband Robert Reay, and four grandchildren.



Dear Fellow AICHE Particle Technology Forum members,

As always, the PTF Dinner is not to be missed! We consistently have over 100 attendees participate in this wonderful, yearly PTF event. It is

a great venue for networking, discussing the various PTF sessions and talks, meeting potential employers/employees, etc. If you haven't yet registered for the AICHE Annual Meeting, just add this ticketed PTF Dinner event on Wednesday night (November 19) to your registration. If you have already registered for the Annual AICHE Meeting, just call 1-800-242-4363 to add this PTF Dinner event using item #42. More logistical details about the PTF Dinner are given in this newsletter.

For this year's AICHE Annual Meeting we are trying an experiment in scheduling the various PTF committee meetings, as well as all other PTF events. To simplify matters, all PTF meeting scheduling – except the PTF General Meeting – will be occurring on Wednesday. All PTF committee meetings for Groups 3A, 3B, 3C, 3D and 3E, the PTF award lectures, and the PTF banquet will be on Wednesday. The PTF committee meetings will all occur at the same time – right after the conclusion of the morning sessions on Wednesday. The PTF General Session will continue to be on Monday as in previous years. We would welcome your thoughts/impressions of this scheduling after the AICHE Annual Meeting is over. Should this process be continued, not continued, or modified in some manner?

We also need your ideas and help on various other matters:

1. Our interactions with students – both undergraduate and graduate students. How can we engage more students in PTF? Those of us in faculty positions should definitely invite our graduate students (who are attending the AICHE Meeting) to the PTF Dinner. We also need some help in the AICHE Student Meeting on Saturday before the AICHE Annual Meeting. PTF has been participating in the Annual Student meeting for many years now. We give an overview presentation of particle technology, highlighting the breadth of impact and importance of particle technology. We have demos which illustrate some of the unique characteristics of particles which are not present in fluids. We are certainly receptive to more ideas for discussion points, new and creative demos, as well as your



LETTER FROM THE CHAIR

presence to encourage undergrads towards careers or additional education in particle technology.

2. More and fresh website content. If you have particle technology educational material, tips for efficient operation of particle technology processes, etc. that you are willing to share, we would gladly post this material on our website. Disseminating best practices is one key way to engage our PTF network and maintain member involvement year after year.
3. Feedback on the overall scheduling of the AICHE Meeting. Although this year the annual meeting is beginning on late Sunday afternoon, Friday afternoon sessions (which are notorious for having extremely poor attendance) have been eliminated. What do you think about this new scheduling setup by AICHE?
4. Judges for the PTF Poster Session. I won't deny it - it is a lot of work and a lot of time on your feet - but how rewarding to interact one-on-one with these excellent PTF students! Please let Manuk (manuk.colakyan@renmatix.com) know if you are interested in helping out with our PTF Poster Session. We still need volunteers for this year's Poster Session at the AICHE Annual Meeting.

Finally, I also wanted to again encourage you to become a PTF Lifetime Member for only \$150. If you are over 40 years of age, you are eligible to be PTF a lifetime



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University of Pittsburgh Alumni
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 Achievement Award



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 Fluidization
 Processing Award



**Shell Global
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 of the Thomas
 Baron Award



PSRI
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 Lectureship in
 Fluidization Award



member. You would no longer need to remember to send in your yearly \$15 membership. I recently joined as a lifetime PTF member – now I am both a lifetime member of AIChE and PTF. It was great for me this year receiving no bill to pay and one less bill to remember. Our newsletter is only mailed to active PTF members, so you don't want to miss receiving the PTF newsletter by letting your membership lapse. Save time and show your strong commitment to PTF through your lifetime commitment to the organization. It is only \$150 and joining the lifetime membership is easy. Just go to the PTF home page on the AIChE website and click Join PTF (Lifetime) <https://www.aiche.org/community/divisions-forums/ptf>.

All the best and see you at the 2014 Annual AIChE Meeting in Atlanta, November 16-21!

✧ Jennifer Sinclair Curtis

Conference Calendar

2014 AIChE Annual Meeting

November 16-21, 2014

Atlanta, GA

<http://www.aiche.org/conferences/aiche-annual-meeting/2014>

8th International Conference on Computational and Experimental Methods in Multiphase Complex Flow (Multiphase Flow 2015)

April 20-22, 2015

València, Spain

<http://www.wessex.ac.uk/15-conferences/multiphase-flow-2015.html>

Abstracts due NOW

8th International Conference for Conveying and Handling of Particulate Solids (CHoPS 2015)

May 3-7, 2015

Tel Aviv, Israel

<http://www.chops2015.org>

Abstracts Due Nov 30, 2014

9th European Solids Mechanics Conference (ESMC 2015)

July 6-10, 2015

Madrid, Spain

<http://www.esmc2015.org>

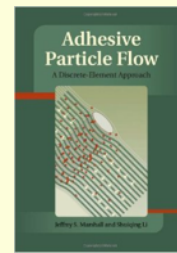
Abstracts Due Nov 30, 2014

Sponsor of the 2014 PTF Reception



Sponsor of the 2014 PTF Reception

New Book!



Adhesive Particle Flow: A Discrete-Element Approach

J.S. Marshall, S. Li

ISBN: 978-1107032071

Get it at Amazon

Group 3 Special Sessions

Session ID	Session Title	Chairs	Co-Chair	Date
421	Particle Technology Forum Poster Session	Manuk Colakyan	Jennifer Curtis	Tue, Nov 18
518	Particle Technology Forum Award Session	Ray Cocco	Reza Mostofi	Wed, Nov 19

Group 3A: Particle Production and Characterization

Dr. Pavol Rajnaiak (Chair) & Prof. Rajesh Dave (Co-chair)

Session ID	Session Title	Chairs	Co-Chair(s)	Date
75	Particle Breakage and Comminution Processes	Afolawemi Afolabi	Priscilla Hill	Mon, Nov 17
121	Control and Optimization of Particle and Solids Production	Bryan Ennis	R. Ramachandran	Mon, Nov 17
252	Dynamics and Modeling of Particles, Crystals and Agglomerate Formation	R. Dennis Vigil	Priscilla Hill	Tue, Nov 18
303	Agglomeration and Granulation Processes	Mehrdad Langroudi	Padma Narayan	Tue, Nov 18
362	Applications of Engineered Structured Particulates	P. Bell	Ilgaz Akseli	Tue, Nov 18
436	Characterization of Engineered Particles and Nanostructured Particulate Systems	Daniel Lepek	S. Conway	Wed, Nov 19
696	Particle Engineering as Applied to Pharmaceutical Formulations	Ecevit Bilgili	Ilgaz Akseli	Thu, Nov 20
724	Engineering Composite Particulate Systems for Pharmaceutical Activity Ingredient Delivery	Stephen Conway	Rajesh Dave	Thu, Nov 20



Group 3B: Fluidization and Fluid-Particle Systems
Prof. Ah-Hyung Park (Chair) & Dr. S.B. Reddy Karri (Co-chair)

Session ID	Session Title	Chairs	Co-Chair	Date
62	Industrial Application of Computational and Numerical Approaches to Particle Flow	Tim Healy	Shailesh Ozarkar	Mon, Nov 17
131	Fluidization and Fluid-Particle Systems for Energy and Environmental Applications I	Fanxing Li	Azita Ahmadzadeh	Mon, Nov 17
186	Fluidization and Fluid-Particle Systems for Energy and Environmental Applications II	Clay Sutton	Martin Sanborn	Mon, Nov 17
286	Special Session: To Celebrate Prof. Mooson Kwauk's Career Long Accomplishments	L-S Fan	Suojiang Zhang	Tue, Nov 18
350	Special Session: Festschrift for Professor Dimitri Gidaspow's 80th Birthday & Career Long Accomplishments I	Robert Lyczkowski	Madhava Syamlal	Tue, Nov 18
407	Special Session: Festschrift for Professor Dimitri Gidaspow's 80th Birthday & Career Long Accomplishments II	Madhava Syamlal	Robert Lyczkowski	Tue, Nov 18
445	Fundamentals of Fluidization I	S.B. Reddy Karri	Raymond Lau	Wed, Nov 19
501	Fundamentals of Fluidization II	Marc-Olivier Coppens	Mike Wormsbecker	Wed, Nov 19
561	Fundamentals of Fluidization III	Clive E. Davies	Scott Moffatt	Wed, Nov 19
622	Circulating Fluidized Beds and Measurement Techniques in Fluid-Particle Systems	Allan Issangya	Greeshma Gadikota	Thu, Nov 20

Group 3C: Solids Flow Handling and Processing

Prof. Kimberly Henthorn (Chair) & Dr. Ben Freireich (Co-chair)

Session ID	Session Title	Chairs	Co-Chair	Date
13	Gas Solid Transport and Separations	Shrikant Dhodapkar	George Klinzing	Sun, Nov 16
17	Mechanistic Understanding and Characterization of the Film Coating Process	Preetanshu Pandey	B. Chaudhuri	Sun, Nov 16
44	Biomass Processing and Handling - A New Frontier	Kerry Johanson	B. Freireich	Mon, Nov 17
125	Dynamics and Modeling of Particulate Systems I	Kerry Johanson	Ben Glasser	Mon, Nov 17
18	Dynamics and Modeling of Particulate Systems II	Madhusud Kodam	Priya Santhanam	Mon, Nov 17
312	Crystallization Process Development	James Marek	Shawn Feist	Tue, Nov 18
472	Special Session: To Celebrate Prof. Roger Place's Career Long Accomplishments	Karl Jacob	Raffaella Ocone	Tue, Nov 18
507	Mixing and Segregation of Particulate I	Rohit Ramachandran	Weixian Shi	Wed, Nov 19
472	Mixing and Segregation of Particulate II	Jerry Heng	Xiaodong Chen	Wed, Nov 19
741	Solids Handling and Processing I	Bryan Ennis	M. Langroudi	Thu, Nov 20
748	Characterization and Measurement in Powder Processing	Clive Davies	M. Langroudi	Fri, Nov 21
758	Solids Handling and Processing II	Karl Jacob	Carl Wassgren	Fri, Nov 21

Group 3D: Nanoparticles

Dr. Karsten Wegner (Chair) & Dr. Bjoern Schimmoeller (Co-chair)

Session ID	Session Title	Chairs	Co-Chair	Date
24	Nanostructured Particles for Bio, Food and Pharma	Georgios Sotiriou	Mark Swihart	Sun, Nov 16
273	Nanostructured Particles for Catalyst I	Ruud van Ommen	Kishori Deshpande	Tue, Nov 18
341	Nanostructured Particles for Catalyst II	Ruud van Ommen	Xinhau Liang	Tue, Nov 18
393	Nanoparticle Coatings & Nanocoatings on Particles	Steven Saunders	Karsten Wegner	Tue, Nov 18
687	Functional Nanoparticles	Da Deng	YangChuan Xing	Thu, Nov 20

Group 3E: Energetics

Prof. Jan Paszynski (Chair) & Prof. Edward Dreizin (Co-chair)

Session ID	Session Title	Chairs	Co-Chair	Date
644	Nano-Energetic Materials I	Edward Dreizin	Jan Puszynski	Thu, Nov 20
694	Nano-Energetic Materials II	Edward Dreizin	Jan Puszynski	Thu, Nov 21
742	Thermophysics and Reactions in Energetic Materials	Veera Boddu	Lori Groven	Thu, Nov 20
557	Exothermic Heterogeneous Processes	Paul Redner	Edward Dreizin	Fri, Nov 21



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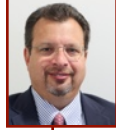
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