



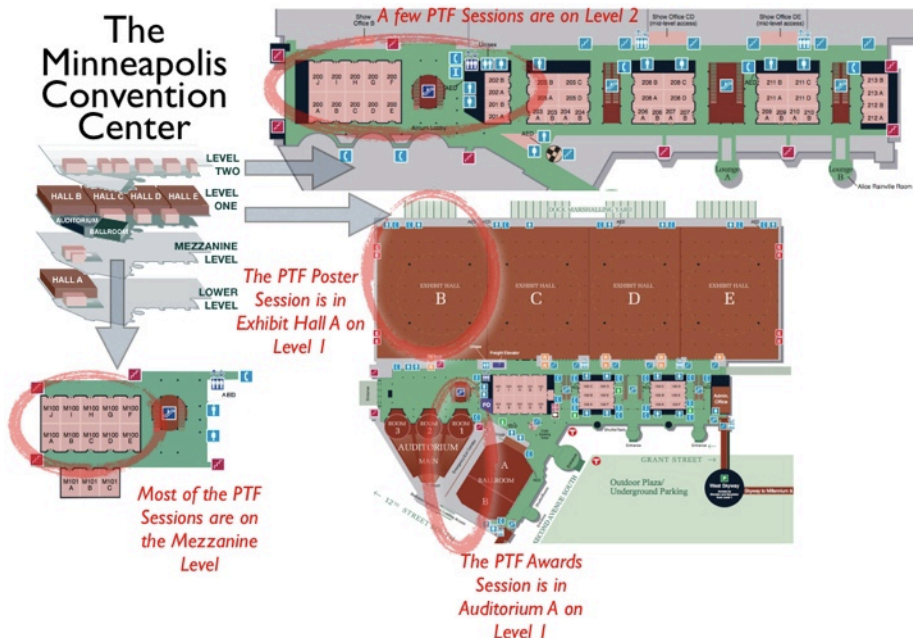
# The PTF Annual Meeting



I think we have a good meeting lined up for everybody at this year's AIChE Annual Meeting in Minneapolis from October 16th to 21st. This year we have 53 full sessions that span all five of our technical areas (Particle Production and Characterization, Fluidization and Fluid-Particle Systems, Solids Flow Handling and Processing, Nanoparticles, and Energetics). Four of those sessions are co-sponsored within the PTF and nine sessions are co-sponsored from outside the PTF. As a result, we have a fresh influx of paper involving pharmaceutical, crystallization, separations, and waste processing technologies. We also have two panel discussion sessions in "Emerging Areas in Fluidization and Fluid-Particle Systems" on Tuesday and "Challenging Problems in Solids Handling" on Wednesday.

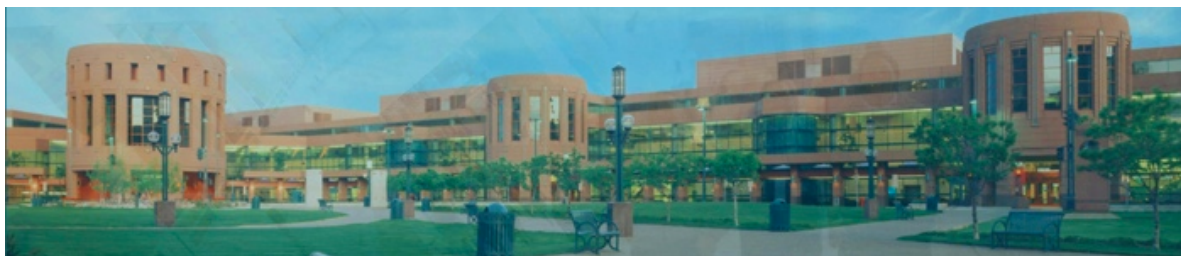
In addition, we have two award presentations on Wednesday. Prof. Jesse Zhu of the University of Western Ontario will be talking about "Handling of Fine Particles - A Nuisance or an Opportunity" and Prof. Roger Bonnecaze of the University of Texas at Austin will be presenting his work on the "Structure, Slip and Rheology of Soft Particle Glasses." In addition, we have the PTF Poster Session on Tuesday night with 19 posters, three of which will be awarded for the PTF Student Poster Awards.

Finally, there is our PTF Reception and Dinner on Wednesday night. This year, the reception and dinner will be at "Hell's Kitchen" which specializes in Midwest flavors. Jenike & Johanson has graciously offered to sponsor the PTF Reception. The reception starts at 6:00 PM local time with dinner starting at 7:30 PM. Details can be found on Page 2.



At this point, I would like to describe how we make all of this happen. It is a team effort. Session titles and ideas are germinated at the area meetings at each AIChE Annual Meeting. Everybody is welcome. The time and locations for this year's meetings are presented on Page 3. The chair and co-chair of each area (Groups 3A through 3E) finalize the titles, generate session descriptions, and find chairs and co-chairs for each session. This all has to be reported to the AIChE in December. Next, the co-chair of the PTF starts soliciting for nominations for all five PTF awards.

In March, we begin to get ready for the "Call for Papers." Announcements are made in our Newsletter and on our website, [www.aicheptf.org](http://www.aicheptf.org). We also do a mass mailing. In May, after the Call for Papers has been closed, the chair and co-chair of each session rates each abstract in terms of acceptance, rejection, or transfer and organizes their session. The chair and co-chair of each area ensure that each session has the





proper number of papers. Sessions with fewer than four papers are typically dissolved. Those papers may or may not be transferred. Next, the PTF Programming Committee confirms that each session is in compliance with our criteria. The Programming Committee also "recommends" scheduling to the AIChE.

At the same time, the co-chair of the PTF is organizing a review board for the PTF Awards, announcing the recipients, collecting bios and photos, and organizing the award sessions. The co-chair is also organizing the PTF Receptions and Dinner at the AIChE Annual Meeting.

In all, it takes about 120 dedicated PTF members to bring to you our part of the AIChE Annual Meeting and that is not counting the AIChE's contribution.



*Ray Cocco, PTF Chair*

## THE ANNUAL PTF DINNER

This year our Annual PTF Reception and Dinner will be on October 19th at Hell's Kitchen ([www.hellskitcheninc.com](http://www.hellskitcheninc.com)). Hell's Kitchen specializes in mid-west fair such as slow-roasted prime rib, BBQ ribs, lobster tacos, cheesecakes, and cobbler. The cost is \$75 per person. We have reserved our own room with a maximum capacity of 120 people, so space is limited. The reception starts at 6:00 PM local time with dinner commencing at 7:30 PM. Located only about one half mile (about a 15 minute walk) from the Minneapolis Convention Center and the AIChE Annual Meeting at 80 South 9th Street (see map below).

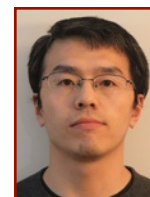
For those of us who registered early, the PTF Dinner option was not available. You can still register at the meeting. However, the limited seating may be an issue with such a late registration. Another option is to call toll free at (800) 242 4363 or (203) 702 7660 if calling from outside the U.S. You can not do this using the online registration. The system will recognize that you have already registered for the meeting and kick you out.



*Hell's Kitchen*  
damn good food

## THIS YEAR'S PTF AWARDEES

*The Best PhD in Particle Technology Award* recipient is **Dr. Deliang Shi** for his work at the University of Pittsburgh. Dr. Shi is currently with S.C. Johnson & Son, Inc. in Kenosha, Wisconsin.



*The DuPont Particle Technology Forum Award* recipient is **Prof. Daniel Rosner** of Yale University for his contributions in his relentless pursuit of non-Brownian particle deposition from high-speed flows, particle synthesis and properties and dynamics in flames and transcritical fluids.



*The Shell Thomas Baron Award* recipient is **Prof. Roger Bonnecaze** of the University of Texas at Austin for his contributions to particle engineering through theoretical and experimental studies of suspension, interfacial flows, particle rheology and pastes.



*The Dow Chemical Fluidized Processing Award* recipient is **Dr. S.B. Reddy Karri** of Particulate Solid Research, Inc. (PSRI) for his outstanding achievements and leadership in the research and development of fluidized beds and circulating fluidized beds.



*The PSRI Lectureship in Fluidization Award* recipient is **Prof. Jesse Zhu** of the University of Western Ontario for his contributions in powder handling, fluid-particle, and multi-phase flow systems.



**JENIKE & JOHANSON**  
Bulk Solids: Science/Engineering/Design

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## KNOW FLOW'S KORNER

## TEN SIMPLE STEPS TO DESIGN SAFER SOLIDS PROCESSING PLANTS

Shrikant V. Dhodapkar, Dow Chemical  
Lyn Bates, Ajax Equipment, Ltd.  
George E. Klinzing, University of Pittsburgh

1. Assessment of combustibility of dust should not be based on assumptions of similarity and guesswork [1-3]. Depending on the process and the operating conditions, some or all of the following data may be required:

- Particle size distribution
- Moisture content
- Electrical volume resistivity
- Charge relaxation time
- Chargeability
- Minimum ignition energy (MIE)
- Minimum explosion concentration (MEC)
- Limiting oxidant concentration to prevent ignition (LOC)
- Maximum explosion pressure at optimal concentration
- Maximum rate of pressure rise at optimal concentration
- Normalized rate of pressure rise (Kst)
- Dust cloud ignition temperature
- Layer ignition temperature

A number of commercial testing laboratories can generate such data.

2. An overall risk assessment for a process must be made during the early stage of process development (Figure 1). You should seek to combine, alter sequence, or modify unit operations with process safety in mind. Follow the flow route through to verify surface tip speeds of moving parts, working clearances, seal temperatures, and other potential ignition features in ensure there are no hazards.

3. Employ best design practices to avoid surfaces or pockets where dust can accumulate (especially ledges in a structure). Implement good housekeeping practices to prevent accumulation of dust. Secondary explosions due to dust entrainment after the primary explosion often results in greater damage.

4. Experimental data on dust explosion characteristics (MIE and Kst) on representative dust is critical. Consult NFPA (National Fire Protection Association,

Table 1: Relevant NFPA Guidelines and Standards [1]

ID	Title	Coverage or Purpose
NFPA61	Standard for the Prevention of fires and Dust Explosions in Agricultural and Food Processing Facilities	Applies to facilities that receive dried handled, processed, blended, used, milled packaged, stored or shipped bulk dry agricultural material; their products or dusts, or facilities that handle or manufacture starch, or facilities that handled or process oil seeds.
NFPA68	Guidelines for Deflagration Venting	Provides technical guidance on designing, sizing, installing and maintaining deflagration vents.
NFPA69	Standard on Explosions Prevention Systems	Addresses the design of explosion prevention, protection and mitigation systems.
NFPA654	Applies to the manufacturing, processing, blending, conveying, repackaging, and handling of combustible particulate solids and their dusts.	Except those specifically addressed in other NFPA standards, and is one of the most cited documents for control measures for combustible dust hazards (OSHA 2005; CCPS 2005)
NFPA70	The National Electric Code - 2005	Addresses electrical equipment and wiring requirements for special situations, including those in which an explosive atmosphere may exist. Defines combustible dust classified locations
NFPA499	Recommended Practice for the Classifications of Combustible Dusts and Hazardous (Classified) Locations for Electrical Installations in Chemical Process Area	Provides guidance for classifying dust processing locations for electrical equipment installation.
NFPA655	Standard for the Prevention of Sulfur Fires and Explosions	Discusses facilities that handle, grind, process, pulverize or crush elemental sulfur.
NFPA664	Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities	Discusses facilities that process or manufacture wood and wood products or that create wood dust and particles

## Upcoming PTF Organizational Meetings

Meeting	Day/Date	Time	Location	Type
PTF Exec Meeting	Sun, Oct 16, 2011	5:00 PM	TBA	Closed
PTF General Meeting	Mon, Oct 17, 2011	11:00 AM	TBA	Open To All
Group A Area Meeting	Tue, Oct 18, 2011	11:00 AM	TBA	Open To All
Group B Area Meeting	Tue, Oct 18, 2011	11:00 AM	TBA	Open To All
Group C Area Meeting	Wed, Oct 19, 2011	11:00 AM	TBA	Open To All
Group D Area Meeting	Wed, Oct 19, 2011	11:00 AM	TBA	Open To All
Group E Area Meeting	Wed, Oct 19, 2011	11:00 AM	TBA	Open To All

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2011 PTF Dinner



[www.nfpa.org](http://www.nfpa.org)) codes, guidelines and standards for data measurement and interpretation to assess the risks and for recommendations on safety measures (Table 1). Additional information can be found in CCPS guideline [2].

5. Identify sources of particle attrition and find ways to minimize it. For instance, minimization of conveying velocity and number of bends, and routing optimization in a pneumatic conveying system can reduce fines generation. As a consequence, the dust explosion potential in downstream dust collectors is reduced.

6. Verify that all electrical equipment, drives, cabling, lighting, fitting, instruments and control panels within the zoned area, conform to relevant standards and regulations.

7. Verify that all electrical equipment, drives, cabling, lighting, fitting, instruments and control panels within the zoned area conform to relevant standards and regulations.

8. Employ substantial earth connections between all relevant sections of the plant and periodically check their integrity. Isolated conductors, such as ungrounded cages in a dust collector, can provide sufficient capacitive discharge energy to initiate an explosion.

9. Ensure that all tools and equipment used in the process area conform to the area classification. This includes mobile phones, cameras, battery operated equipment, inspection lamps and hand-tools (e.g. spark-proof wrenches).

10. Hot work, including welding, grinding and drilling, should be performed under safe work permits. Safe work permits ensure documentation of conditions, potential hazards, preparation for safe working conditions, scope of the job, and limitations before the work commences.

11. Implement a preventive maintenance and inspection program for checking bearings, seals and

working parts. Examine for rubbing contact, belt slip and alignment and for any signs of wear or overheating.

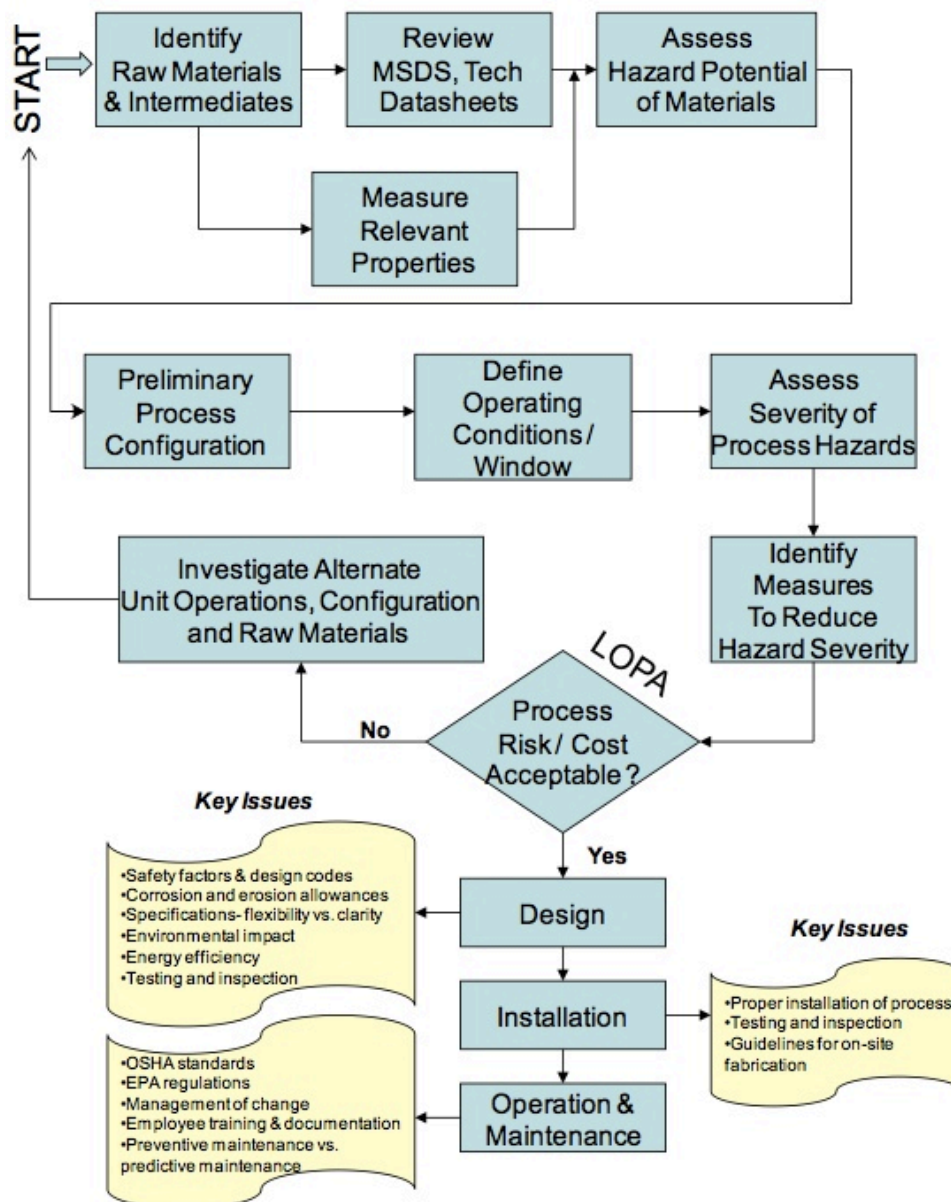
References:

[1] Dhodapkar, S., Manjunath, K., Jain, P., Design Safer Solids Processing Plants, Chemical Engineering, pp. 34-39, January 2007.

[2] Center for Chemical Process Safety, Guidelines for Safe Handling of Powders and Bulk Solids, AIChE 2005.

[3] Eckhoff, R., Dust Explosion in Process Industries, Butterworth-Heinemann, 1997.

12.



**Group 3A: Particle Production and Characterization**

Prof. Ecevit Bilgili (Chair) &amp; Dr. Pavol Rajnaiak (Co-chair)

Session ID	Session Title	Chairs	Day/Time	Location
03A03 / #47	Population Balance Modeling for Particle Formation Processes: Nucleation, Aggregation and Breakage Kernels	R. Ramachandran, P. Rajnak	Mon, 8:30 AM	M 100 F (MCC)
03A04 / #67	Agglomeration and Granulation Processes	P. Narayan, D. Talay	Mon, 12:30 PM	M 100 F (MCC)
03A05 / #139	Applications of Engineered Structured Particulates	P. Bell, W.K. Ng	Mon, 3:15 PM	M 100 F (MCC)
03A06 / #208	Characterization of Engineered Particles and Nanostructured Particulate Systems	S. Lepek, S.L. Conway	Tue, 8:30 AM	M 100 F (MCC)
03D01 / #223	Gas Phase Synthesis of Nanoparticles	A. Limaye, R.N. Grass	Tue, 8:30 AM	M 100 J (MCC)
15B02 / #230	Innovations in Drug Delivery Technology I	E. Bilgili, M. Southard	Tue, 8:30 AM	Conrad A (Hilton)
03A07 / #291	Dynamics and Modeling of Particles, Crystals and Agglomerate Formation	M.S. Tomassone, D. Shi	Tue, 12:30 PM	M 100 F (MCC)
03C06 / #357	Characterization and Measurements in Powder Processing	C. Davies, M. Kheiripour	Tue, 3:15 PM	M 100 D (MCC)
03A08 / #397	Particle Breakage and Comminution Processes	P. Hill, E. Bilgili	Tue, 3:15 PM	M 100 F (MCC)
15B08 / #431	Applications of Continuous Processing in Manufacture of Drug Substance	H. Woelfler, A.S. Butterbaugh	Wed, 8:30 AM	Conrad A (Hilton)
03A09 / #463	Magnetic Particle Synthesis and Properties	R.N. Grass, E.K. Athanassiou	Wed, 8:30 AM	M 100 F (MCC)
03A10 / #527	Engineered Composite Particulate Systems for Pharmaceutical Active Ingredient Delivery	R. Dave, S.L. Conway	Wed, 12:30 PM	M 100 F (MCC)
03A12 / #667	Particle Formation and Crystallization Processes From Liquids, Slurries and Emulsions	R. Thakur, S. Huggins	Thu, 8:30 AM	M 100 J (MCC)
15B04 / #666	Particle Engineering as Applied to Pharmaceutical Formulations I	E. Bilgili, R. Dave	Thu, 8:30 AM	Conrad A (Hilton)

**Group 3B: Fluidization and Fluid-Particle Systems**

Dr. Reza Mostofi (Chair) &amp; Prof. Ah-Hyung Park (Co-chair)

Session ID	Session Title	Chair	Day/Time	Location
03B02 / #25	Fundamentals of Fluidization I	L. S. Fan, S.B. R. Karri	Mon, 8:30 AM	M 100 E (MCC)
03B03 / # 91	Fundamentals of Fluidization II	T. C. Ho, S.B.R. Karri	Mon, 12:30 PM	M 100 E (MCC)
03B04 / #154	Fluidization and Fluid-Particle Systems for Energy and Environmental Applications	J. De Wilde, F. Li	Mon, 3:15 PM	M 100 E (MCC)
03B01 / #260	Special Session: To Celebrate Ted Knowlton's Career Long Accomplishments I	R. Cocco, S.B.R. Karri	Tue, 8:30 AM	M 100 E (MCC)
03B11 / #335	Special Session: To Celebrate Ted Knowlton's Career Long Accomplishments II	S.B.R. Karri, R. Cocco	Tue, 12:30 AM	M 100 E (MCC)
03B10 / #396	Panel Discussion on Emerging Areas In Fluidization and Fluid-Particle Systems	R Mostofi, Y Liu	Tue, 3:15 PM	M 100 E (MCC)
03B06 / #457	Industrial Application of Computational and Numerical Approaches to Particle Flow I	R. Cocco, F. Wang	Wed, 8:30 AM	M 100 E (MCC)
03B08 / #686	Circulating Fluidized Beds	A. Issangya, H. Iddir	Thu, 12:30 PM	M 100 E (MCC)

**Group 3 Special Sessions**

Session ID	Session Title	Chairs	Day/Time	Location
03001 / #418	Particle Technology Forum Poster Session	M. Colakyan, R. Cocco	Tue, 6:00 PM	Exhibit Hall B (MCC)
03002 / #605	Particle Technology Awards Lectures	R. Cocco, J.S. Curtis	Wed, 3:15 PM	Auditorium Room 1 (MCC)



**Group 3C: Solids Flow Handling and Processing**

Dr. Bruce Hook (Chair) & Prof. Kimberly Henthorn (Co-chair)

Session ID	Session Title	Chairs	Day/Time	Location
03C01 / #55	Solids Handling and Processing	S. Dhodapkar, B. Remy	Mon, 8:30 AM	M 100 D (MCC)
03C04 / #85	Dynamics and Modeling of Particulate Systems I	D. Shi, K.H. Henthorn	Mon, 12:30 PM	M 100 D (MCC)
032B02 / #131	Advances and Case Studies in Crystallization and Post-Processing	J. Esngstrom, B.D. Hook	Mon, 3:15 PM	202 B (MCC)
03C05 / #151	Dynamics and Modeling of Particulate Systems II	B. Freireich, M. Tomassone	Mon, 3:15 PM	M 100 D (MCC)
03C06 / #208	Characterization and Measurement In Powder Processing	C.E. Davies, M. Kheirpour	Tue, 12:30 PM	M 100 F (MCC)
03C02 / #238	Mixing and Segregation of Particulates I	B. Hook, I. Figueroa	Tue, 8:30 AM	M 100 D (MCC)
03C03 / #310	Mixing and Segregation of Particulates II	K. Johanson, B. Hook	Tue, 12:30 PM	M 100 D (MCC)
03C06 / #357	Characterization and Measurement In Powder Processing	C. Davies, M. Kheirpour	Tue, 3:15 PM	M 100 D (MCC)
02F10 / #411	Solids-Liquid Separation Processes for the Petroleum Industry	S.A. Odueyungbo A. Moinuddin	Tue, 3:15 PM	203 B (MCC)
15B08 / #431	Applications of Continuous Processing in Manufacture of Drug Substances	H. Woeifler, A. Butterbaugh	Wed, 8:30 AM	Conrad A (Hilton)
03C08 / #479	Solids Processing Challenges In Biomass Conversion	M. Colakyan, K.H. Henthorn	Wed, 8:30 AM	M 100 D (MCC)
02F06 / #484	Theories and Applications of Cross Flow Filtration	S.A. Odueyungbo, Y. Wu, A. Moinuddin	Wed, 8:30 AM	203 B (MCC)
03C07 / #513	Challenging Problems In Solids Handling - Panel Discussion	S. Dhodapkar, J.J. McCarthy	Wed, 12:30 PM	M 100 D (MCC)
03A10 / #527	Engineered Composite Particulate Systems for Pharmaceutical Active Ingredient Delivery	R. Dave, S. Conway	Wed, 12:30 PM	M 100 F (MCC)
03C09 / #657	Measurement, Monitoring and Characterization Methods for Particulate Systems Research In Powder and Granular Mixing	C.E. Davies, F. Muzzio	Thu, 8:30 AM	M 100 D (MCC)
T4D06	Conversion of Solid Wastes to Energy and/or Product	C. Davies, F. Muzzio	Thu, 8:30 AM	M 100 D (MCC)
03D09 / #740	Handling and Processing of Nanoparticles	r. Flagan	Thu, 3:15 PM	M 100 H (MCC)

**Group 3D: Nanoparticles**

Dr. Gary Liu (Chair) & Dr. Jan Paszynski (Co-chair)

Session ID	Session Title	Chairs	Day/Time	Location
03D03 / #27	Health and Environmental Effect of Nanoparticles	E.K. Athanassiou, A. Limave	Mon, 8:30 AM	M 100 H (MCC)
03D01 / #223	Gas Phase Synthesis of Nanoparticles	A. Limaye, R. Grass	Tue, 8:30 AM	M 100 J (MCC)
03D04 / #247	Nanostructured Particles for Catalysis	R. Van Ommen, K. Deshpande	Tue, 8:30 AM	200 A (MCC)
03D02 / #341	Synthesis, Characterization and Modelling of Nanoparticle Systems with Pharmaceutical Applications	M.S. Tomassone, R. Dave	Tue, 12:30 AM	M 100 J (MCC)
03D05 / #374	Functional Nanoparticles and Nanocoatings on Particles I	D.M. King, K. Wegner	Tue, 12:30 PM	M 100 J (MCC)
17001 / #394	Nanocellulose-Based Materials and Composites	J. Zhu	Tue, 3:15 PM	102 E (MCC)
03D09 / #740	Handling and Processing of Nanoparticles	R.C. Flagan	Thu, 3:15 PM	M 100 H (MCC)

**Group 3E: Energetics**

Dr. Chester Clark (Chair) & Prof. Gregory Beaucage (Co-chair)

Session ID	Session Title	Chairs	Day/Time	Location
12B00 / #71	Best Practices In Pilot Plant Separation	D. C. Attridge, W. Hallar	Mon, 12:30 PM	Marquette IV (Hilton)
03E04 / #490	Advance On-Line Analytical and Optimization Tools In Pilot Plants	D.C. Attridge, J.S. Salan	Wed, 12:30 PM	M 100 J (MCC)
03E01 / #663	Nanoenergetic Materials	E.A. Puszynski, E. Dreizin	Thu, 8:30 AM	M 100 H (MCC)
03E02 / #707	Processing and Safety of Energetic Materials	S. Prickett, J. Bolognini	Thu, 12:30 PM	M 100 F (MCC)
03E03 / #760	Thermophysical Properties of Energetic Materials	V. Boddu, P. Redner	Thu, 3:15 PM	M 100 F (MCC)





## Calendar

### 2011 AIChE Annual Meeting

October 16-21, 2011, Minneapolis, MN  
<http://www.aiche.org>

### 61st Canadian Chemical Engineering Conference

October 23-26, 2011, London, Ontario, Canada  
<http://www.csche2011.ca/>

### 6th Sino-US Joint Conference of Chemical Engineers

Nov 7-10, 2011, Beijing, China  
<http://www.sinouschemeng.com/>

### 2011 APS Division of Fluid Dynamics

Nov 20-22, 2011, Baltimore, MD  
<http://www.aps.org/units/dfd/meetings/meeting.cfm?name=DFD11>

### 21st International Conference on Fluidized Bed Combustion

June 3-6, 2012, Naples, Italy  
<http://www.21fbc.org/>

### 5th Asian Particle Technology Symposium (APT2012)

July 2-5, 2012, Singapore  
<http://rpsonline.com.sg/apt12/index.html>

### 8th European Solid Mechanics Conference

July 9-13, 2012, Graz, Austria  
<http://www.esmc2012.tugraz.at/>

### 23rd International Congress of Theoretical and Applied Mechanics

August 19-24, 2012, Beijing, China  
<http://www.ictam2012.org/>

### AIChE Annual Meeting

Pittsburgh Convention Center  
 Pittsburgh, PA  
 October 28 - November 2, 2012

### AIChE Annual Meeting

San Francisco Hilton  
 San Francisco, CA  
 November 17 - 22, 2013

## Committee Chairs

### PTF NEWSLETTER

Prof. Christine Hrenya, Editor  
[hrenya@colorado.edu](mailto:hrenya@colorado.edu)  
 (303) 492-7689

### PTF WEBSITE

Dr. Pat Spicer, Webmaster  
[spicer.pt@pg.com](mailto:spicer.pt@pg.com)  
 (513) 634 9628

### RECOGNITION

Prof. Sortiris Pratsinis  
[pratsinis@ivuk.mavt.ethz.ch](mailto:pratsinis@ivuk.mavt.ethz.ch)  
 41 1 632 3180

### PROGRAMMING

Dr. Manuk Colakyan  
[manuke@aol.com](mailto:manuke@aol.com)

Dr. Shrikant Dhodapkar  
[sdhodapkar@dow.com](mailto:sdhodapkar@dow.com)  
 (979) 238 7940

## PTF Liaison

### AIChE STAFF LIAISON

Ms. Darlene Schuster  
[darls@aiiche.org](mailto:darls@aiiche.org)

### INDUSTRIAL LIAISON

Ronald Breault  
[ronald.breault@netl.doe.gov](mailto:ronald.breault@netl.doe.gov)

Stephen Conway  
[stephen-conway@merck.com](mailto:stephen-conway@merck.com)

Greg Mehos  
[gmehos@jenike.com](mailto:gmehos@jenike.com)

Reza Mostofi  
[reza.mostofi@uop.com](mailto:reza.mostofi@uop.com)

### ACADEMIC LIAISON

Hamid Arastoupour  
[arastoupour@iit.edu](mailto:arastoupour@iit.edu)

Jim Gilchrist  
[gilchrist@lehigh.edu](mailto:gilchrist@lehigh.edu)

Christine Hrenya  
[hrenya@colorado.edu](mailto:hrenya@colorado.edu)

Ah-Hyung Alissa Park  
[ap2622@columbia.edu](mailto:ap2622@columbia.edu)

## PTF Officers

### CHAIR

Dr. Ray Cocco  
[raycocco@psrichicago.com](mailto:raycocco@psrichicago.com)  
 (773) 523 7227

### CO-CHAIR

Prof. Jennifer Sinclair-Curtis  
[jcurtis@che.ufl.edu](mailto:jcurtis@che.ufl.edu)  
 (352) 392 0882

### TREASURER

Prof. Ah-Hyung Alissa Park  
[ap2622@columbia.edu](mailto:ap2622@columbia.edu)  
 (212) 854 8989

### SECRETARY

Dr. Stephen Conway  
[stephen-conway@merck.com](mailto:stephen-conway@merck.com)  
 (215) 652-6031

Interested in helping the PTF as a sponsor. We have opportunities for sponsoring awards and dinners. Please contact Ray Cocco at [raycocco@psrichicago.com](mailto:raycocco@psrichicago.com)

**The PTF is now sponsoring job searches on the web. Need a job, need an engineer, go to <http://www.aicheptf.org>.**



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 PTF Award



**Shell Global Solutions**  
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 Thomas Baron  
 Award Award



**PSRI**  
 Sponsor of the 2011  
 Lectureship in  
 Fluidization Award

## PTF Treasury Report

*Prepared by Prof. Ah-Hyung Alissa Park*

Item	Ref Date	AIChE PTF Account		Independent PTF Account	
		Activity	Balance	Activity	Balance
Starting Balance	Jul-11		\$10,168.08		\$ 5,748.10
Dues Income	Jul-11	\$ 60.00	\$10,228.08		
Website Fees	Jul-11			\$(525.99)	\$ 5,222.11
PTF Credit Card Fees	Jul-11			\$(25.00)	\$(25.00)
PSRI Sponsorship	Aug-11			\$1,150.00	\$ 6,372.11
Totals			\$ 10,228.08		\$ 6,372.11

## NEW BOOKS

### Heat Transfer in Fluidized Beds

By: O. Molerus and K.-E. Wirth  
 ISBN: 0 412 60800 6

### Computational Techniques: The Multiphase CFD Approach to Fluidization and Green Energy Technologies

By: Dimitri Gidaspow and Veeraya Jiradilok  
 ISBN: 978-1-60876-024-4

