The Particle Society of Minnesota Newsletter

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A Note from the President.
This month we continue our series of particle science seminars with a talk on granular materials that is sure to have broad application to many of our fields. We follow that up with a talk on nanoparticle applications in November, and a talk on microencapsulation in December. All this plus lunch–ahh, the benefits of membership in the Particle Society! And membership is yours for the price of an admission to one of our programs. Hope to see you this month!

–Jim Marti, President of the Particle Society

You can always get up-to-date information on Particle Society activities at our web site, www.particlesociety.org. If you no longer wish to get PSM notices, please see the end of this newsletter for instructions on removing your name from our list.

In this issue

The Particle Society of Minnesota continues its Fall Lunch Hour Speaker series.

In September, the Particle Society kicked off a new series of midday talks dedicated to sharing a broad range of particle science topics with our membership. The first talk, "A Technical Review of Inhalation Drug Delivery Systems", was presented by Brian Gabrio, of the 3M Company's Inhalation Drug Delivery Systems Group. Mr. Gabrio's talk nicely melded aerosol science with cutting edge applications of particles in drug delivery.

We have a full slate of talks scheduled for the coming months. Here is a schedule of the programs in October, November, and December, along with talk details. Don't forget–a buffet lunch is included in every program!

October 30: Segregation Phenomena in Granular Media
Dr. James Kakalios, School of Physics and Astronomy, University of Minnesota.

Abstract. In addition to its intrinsic scientific interest and geological significance, the study of the statics and dynamics of granular materials has profound industrial and commercial applications. Expenses involved with powder processing in the pharmaceutical, agricultural and construction industries in this country alone are estimated to be on the order of $80 billion a year. In this talk I will discuss some recent advances in our understanding of dynamical properties of granular media. One of the more striking phenomena exhibited by granular materials is the size or mass segregation of two or more different granular species when dynamically driven. Rather than leading to further mixing, as would be expected, spontaneous segregation can be observed when mixtures are rotated in a horizontal cylinder about its long axis or simply poured into a vertical Hele-Shaw cell with narrow plate separations. The former case, termed Axial Segregation, has important consequences for drum mixers (and traffic jams in highway flow!), while the second example, termed Avalanche Stratification, has applications for both geological and industrial problems.

November 5: Applications of Nanoparticles in Surface and Interfacial Phenomena.
Dr. Jimmie Baran, the 3M Company

Abstract: Nanoparticles can be used as alternatives to surfactants in many, but not all, applications. The nanoparticles do not lower the surface tension of the system like surfactants, but instead act as a barrier to coalescence by a physical means. Both positive and negative characteristics of nanoparticles versus surfactants will be highlighted. A proposed functional mechanism will also be discussed

December 3: Microencapsulation and Controlled Release (Highlights from the recent meeting of the Controlled Release Society).
Dr. Gary Reineccius, Department of Food Science, University of Minnesota.

Abstract: to be presented in next month's newsletter.

JOIN US FOR THESE EVENTS!

Time: All programs will begin with a buffet lunch at 11:30, followed by the talk, which will last about 45-50 minutes. A 10-15 minute question period will conclude the event.

Registration: Please RSVP by e-mail to Sara Gantner at sgantner@hbpx.hosokawa.com (Registration is limited to 30 attendees.)

Cost$10 / $8 for students - payable at the door by cash or check ("Particle Society of MN").

Lunch is included: sandwich bar, sodas, chips, fruit, desert.

The location for all talks will be the H. B. Fuller Corporate Headquarters at 1200 Willow Lake Drive in Vadnais Heights.

Directions: Take I-694 East or West to I-35E North. Proceed on I-35E North (North of I-694) to the first exit - County Rd. E. Turn Right on County Rd. E. heading east. The next stoplight should be Willow Lake Dr. (it has a Holiday Inn Express Hotel on the corner). Turn Right heading S-SE. Proceed to first stop sign. Continue 1/8 more block and turn right into the first driveway (H.B. Fuller sign). Turn Left at the next stop sign at a T intersection and proceed to the H. B. Fuller main entrance. The front desk will direct you to the Seminar room.

Upcoming Particle Science Talks at the University of Minnesota

1. The Particle Technology Lab at the University of Minnesota is also sponsoring a lecture series featuring talks on aerosol and air quality related topics. The remaining talks in the series are:

Oct. 31, Friday, 2:30 p.m., **Taesung Kim**, "Microcontamination control during slider fabrication process in hard disk drive manufacturing"
Nov. 21, Friday, 2:30 p.m., **Art Miller**, "The Origin and Fate of Metals in Diesel Engine Combustion"
Dec. 05, Friday, 2:30 p.m., **Hongbin Ma**, "Real time PM(particulate matter) sensor for diesel combustion"
Dec. 12, Friday, 2:30 p.m., **Seong-Chan Kim**, "Modeling of the vibration effect on fiber filters"

For location and more information: contact Xiaoliang Wang at wxl@me.umn.edu.

2. The Mechanical Engineering Seminar this week presents

"Diagnostics of Particles in Thermal Spray Processes" by **Dr. Christian Moreau,** National Research Council, Canada

Wednesday, October 29, 3:30-5:00 p.m., Room 1130 Mechanical Engineering
For more information: contact Betsy A. Antinozzi
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