

Second Glue Workshop “Granular Flows and Kinetics”

1.18.03

6-8 pm

Reception, Argonne National Laboratory GuestHouse

1.19.03 APS Auditorium, Bldg 402

8.30-8.50 Registration

8.50-9.00 Welcome by George Crabtree, Materials Science Division Director

Section: Segregation and Multi-Phase Flows

Chair: Igor Aronson, ANL

9.00-9.40

Thomas O’Brien, NETL

“On a Turbulence of Multiphase Flows”

9.40-10.00

Jie Li, ANL

“Controlling Gas-Solid Contact by Modulated Air Flow in a Shallow Fluidized Bed”

10.00-10.20

Sreekanth Pannala, ORNL

“MFI Simulations: Square CFB and ANL Flower Bed”

10.20-10.40 Coffee Break

10.40-11.20

Troy Shinbrot, Rutgers University,

“Banding and Scaling in Powders and Suspensions”

11.20-12.00

Heinrich Jaeger and Sid Nagel, University of Chicago,

“Effects of Interstitial Fluid on Granular Size Segregation”

12.00-12.20

Cynthia Olson, LANL

“Grain ordering, stability, and dynamics for anisotropic grains and chains”

12.20-13.20 Lunch at APS Gallery

Section “Dense Granular Flows”

Chair: Gary Grest, Sandia

13.20-14.00

Oliver Pouliquen, U. of Marseille, France

“Dense Granular Flows on Incline Plane”

14.20-14.40

Leo Silbert, U. of Chicago

“Granular Flow down a Rough Incline Plane”

14.40-15.20

Deniz Ertas, ExxonMobil

“Clusters and Rheology of Dense Granular Flows”

15.20-15.40 Coffee Break

15.40-16.20

Tom Lubensky, Penn State

“Hydrodynamic Theory of Shear Granular Flows”

16.20-16.40

Michel Louge, Cornell

“A Model of Dense Granular Flows down Bumpy Inclines”

16.40-17.20

Lev Tsimring, UCSD

“Partially-Fluidized Granular Flows: Continuum Theory vs MD Simulations”

17.20-17.40

Dmitri Volfson, UCSD

“Granular Flows in a Deep Couette Cell: Continuum Theory vs MD Simulations”

17.40-19.30

Posters and Informal Discussions, Lab Tours

19.30 Dinner at Argonne GuestHouse

1.20.03 APS Auditorium, Bldg 402

Section: Granular Gases

Chair: Eli Ben-Naim, LANL

9.00-9.40

Jeff Olafsen, U. of Kansas

“Energy Injection and non-Gaussian Velocity Statistics in Driven Granular Gases”

9.40-10.00

Dan Blair, Clark University

“Experimental Studies on the Collision Statistics in a Granular Gas”

10.00-10.40

Paul Krapivsky, Boston University

“Inelastic Maxwell Model of Granular Gas”

10.40-11.00 Coffee Break

11.00-11.40

James Dufty, University of Florida

“The Current Status of Kinetic Theory for Granular Gases”

11.40-12.00

Xiaobo Nie, John Hopkins University

“Velocity Statistics and Collective Motion of Granular Gases”

12.00-13.20 Lunch at APS Gallery

Section: “Properties of Static and Quasi-Static Granular Matter”

Chair: Dave Hoffman, Ames Lab

13.20-14.00

Rodney Fox, Iowa State University,

“Continuum Modeling of Multiphase Flows”

14.00-14.40

Jerry Gollub, Haverford College

“Dynamics of 3D Sheared Granular Flow in a Fluid”

14.40-15.00

James Landry, Sandia

“Confined Granular Packing: Structure, Stress and Forces”

15.00-15.20

Michael Shearer, Univ. of North Caroline

“The Effect of Discreteness in Continuum Models of Granular Flow”

15.20-15.40 Coffee Break

15.40-16.20

Alan Hurd, LANL

“Using scattering to study 3D stresses in a granular compact”

16.20-17.00

Arshad Kudrolli, Clark University

“Clustering, Jamming and Segregation in Cohesive Granular Materials”

17.00-17.20

Thomas Halsey, ExxonMobil

“A Ball in a Groove: Kinematics of Static Loading”

17.20-19.30

Posters and Informal Discussions, Lab Tours

19.30 Dinner at Argonne Guesthouse

1.21.03 APS Auditorium, Bldg 402

Section: Segregation, Clustering and Effects of Fluid

Chair: Shankar Subramaniam, Iowa State University

9.00-9.40

Bob Ecke, LANL

“Experiments in Granular Media: Chains, Particle-Fluid Interactions and Granular Flows”

9.40-10.00

Maksim Sapozhnikov, ANL

“Self-Assembly of Microparticles in Electrostatically Driven Poorly Conducting Liquid”

10.00-10.20

Coffee Break

10.20-11.00

Julio Ottino, NorthWestern University

“Mixing and Segregation in Granular Matter: Competition between Chaos and Order”

11.00-11.40

Bob Behringer, Duke University

“Force Transmission in Granular Materials”

11.40-12.00

Dr. Zeina A. Khan, University of Toronto

“Traveling Waves in Axial Segregation: Simultaneous Surface Concentration and Angle Measurements”

12.00-12.20 Discussions, Closing Remarks

12.20-13.20 Lunch at APS Gallery

Adjourn

Posters:

JC Tsai & Jerry Gollub, Univ. of Pennsylvania

“Order Transition of a Thick-layer Sheared Granular Flow”

Eric Corwin, University of Chicago

“Twisted Sandpiles”

Dr. Charles Reichhardt

Center for Nonlinear Studies

Los Alamos National Laboratory

”Ratchet-Induced Segregation and Transport of Non-Spherical Grains”

We consider through simulations the behavior of elongated grains on a vibrating ratchet-shaped base. We observe differences in layer velocity profile and in net grain velocity for grains that are composed of one, two, or three colinear spheres. In the case of mixtures of different species of grains, we demonstrate layer-by-layer variation in the average velocity as well as layer segregation of species, and show that horizontal separation of the species can be achieved using this geometry. We also find that the addition of a small number of shorter grains to a sample of long grains provides a lubrication effect that increases the velocity of the long grains.

Dr. Zahir Daya, LANL

“Vibrated granular chains: geometric configurations and their evolution”