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Fall 2007 COLLOQUIUM SERIES

# **GRANULAR AND MULTIPHASE FLOWS**

*Sponsored by*

**Mechanics Research Communications and the Granular Science Laboratory**

**Prof. Nina C. Shapley**

**Columbia University  
Chemical Engineering Department  
New York, NY 10027**

November 19, 2007  
11:30 a.m. – 1:00 p.m.  
MEC 224

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## **Complex Geometry Flows of Concentrated Suspensions and Novel Tracer Particle Design**

Intensive research efforts into flows of concentrated suspensions have yielded experimental data, continuum models and numerical simulations that are useful for suspension flows in simple geometries such as circular pipes. However, for many complex flow geometries, modeling calculations and experimental data are quite rare. This talk will focus on an experimental investigation of concentrated suspension behavior in contraction-expansion and bifurcation flows, using nuclear magnetic resonance imaging (NMRI) and microfluidics measurement techniques. Also, the development of novel biopolymer gel tracer particles can contribute new tools to the study of suspensions and granular flows.

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Professor Shapley received her PhD in Chemical Engineering from MIT in 2000, and then pursued postdoctoral research at the University of California, Davis. She joined the Chemical Engineering faculty at Columbia University in 2002 as an Assistant Professor. Her research focuses on understanding flows of concentrated dispersions through quantitative imaging measurements and the design of particles with novel properties. She is a member of the American Institute of Chemical Engineers and the Society of Rheology.