ENGINEERING SCIENCES & APPLIED MATH--FEATURED SPEAKER

Modeling Segregation in Granular Flows

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M416 (ESAM Conference Room), Tech

Accurate continuum models of flow and segregation of dense granular flows are now possible. This is the result of extensive comparisons, over the last several years, of computer simulations of increasing accuracy and scale, experiments, and continuum models, in a variety of flows and for a variety of mixtures. Computer simulations --- discrete element methods (DEM) --- yield detailed views of granular flow and segregation. Continuum models, however, offer the best possibility for parametric studies of outcomes in what could be a prohibitively large space resulting from the competition between three distinct driving mechanisms: advection, diffusion, and segregation. I will discuss our work on a continuum transport equation based framework informed by phenomenological constitutive equations that accurately predicts segregation in many settings, both industrial and natural. In addition to the flows and mixtures described in this talk, many straightforward extensions of the framework appear possible.

Note: Cookies will be served at 3:30