PHYSICAL MATHEMATICS SEMINAR

Beer Foam and Beach Ripples: Pattern Formation in Granular-Fluid Flows

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ABSTRACT:

We examine interfacially-driven pattern formation in two granular-fluid systems: Landau-Levich coating by a suspension, and formation of sand ripples under oscillatory water flow. In suspension coatings, large particles aggregate under the influence of capillary attraction, yielding a labyrinthine deposition pattern. In sand ripples, the interaction of fluid flow with the sand bed topography results in heterogeneous shear stresses on the bed, which in turn drive sediment transport. We describe experiments and mathematical modeling towards understanding these systems.

TUESDAY, April 3, 2012
2:30 PM
Building 2, Room 105

Reception at 3:30 PM in Building 2, Room 290
(Math Dept. Common Room)

http://math.mit.edu/pms

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