Shearbanding Instability and Patterns in Granular Shear Flows

PRIYANKA SHUKLA, MEHEBOOB ALAM, J.N.Centre for Advanced Scientific Research, Bangalore — When a (dense) granular material is sheared in shear-cell experiments, shearing remains confined to a narrow localized zone ("shearband") near the moving boundary. Such shear-banding has also been realized in the molecular dynamics simulations of granular plane Couette flow for a range of densities (even without gravity) in the rapid flow regime. In this talk I will present the shear-banding instability of granular shear flow via an order parameter equation.


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