

Abstract Submitted
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Correlation in granular shear flows GREGG LOIS, University of California, Santa Barbara, JEAN CARLSON, University of California, Santa Barbara — We investigate the effects of long-range correlation in simulations of sheared granular materials and develop theories to model force propagation in the dense regime. Measurements of spatial force correlations determine the size of force networks that emerge as the density is increased. The magnitude of the correlation length separates the dilute regime, where kinetic theory holds, from a dense regime where its assumptions break down. In the dense regime we introduce theories that successfully predict constitutive relations for the stress tensor, using geometrical properties of the force networks. Additionally, we observe that the behavior of the contact force distribution at small forces is highly dependent on the size of the force networks.

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