Connecting the behavior of granular layers on inclined planes to the nonlocal fluidity model KEN KAMRIN, MIT, DAVID HENANN, Brown University — Recently, a grain-size-sensitive rheology for granular flow has been proposed based on the nonlocal fluidity concept. While primarily intended to describe the effect that grain size has on developed flow fields, this talk will show how the same framework also explains the Hstop phenomenon commonly observed in thin granular layers on inclined planes, in which thinner layers appear to be stronger than thicker ones. Moreover, the experimental phase diagram for flow vs no-flow of a layer of glass beads in this geometry is well-predicted using the same modeling parameters that describe the steady flow of those beads in split-bottom cells and other geometries.

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