Abstract Submitted
for the DFD15 Meeting of
The American Physical Society

Gravity-Driven Particle-Laden Flow on an Incline SARAH BURNETT, University of North Carolina, Chapel Hill, JESSE KREGER, Occidental College, HANNA KRISTENSEN, Pepperdine University, ANDREW STOCKER, University of San Francisco, JEFFREY WONG, LI WANG, ANDREA BERTOZZI, UCLA Math Department — We present experimental results of the height profile of particle-laden viscous thin films with finite volume on an incline. For high angles of inclination and high concentrations of mixtures, negatively buoyant particles undergo resuspension then accumulate at the front of the suspending fluid; this leads to the development of a particle-rich 'ridge'. Theoretically, the ridge corresponds to the shocks which take on two characteristic shapes: singular and double shocks. We observe the presence of both formations experimentally by varying the volume of the slurry and compare our results to the theoretical model. Our research also investigates the dependence of the fingering instability as the inclination angle or particle to liquid concentration is changed. The slurries have similar dynamics to those used in coating flow techniques and other industrial applications.

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Date submitted: 31 Jul 2015 Electronic form version 1.4