

Abstract Submitted  
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**Slurries: An Experimental Study Of Gravity-Driven Particle-Laden Thin Film Flows** JOYCE HO, VINCENT HU, University of California, Los Angeles, TRYSTAN KOCH, Harvey Mudd College, PAUL LATTERMAN, University of California, Los Angeles, KANHUI LIN, Hong Kong University, MATTHEW MATA, NEBOJSA MURISIC, ANDREA BERTOZZI, University of California, Los Angeles — An experimental study of gravity driven particle-laden thin film flows reveals several different regimes: particles either settle onto the solid substrate and out of the flow, they accumulate in the contact line region, or remain well mixed throughout the liquid layer. We carry out extensive experiments using liquids with varying viscosity, several different particle sizes and a wide range of particle concentrations and inclination angles, and accurately determine which regime characterizes each considered configuration. We compile our experimental observations and construct phase diagrams which clearly indicate the influence of the experimental parameters on the observed flow regime. In particular, our results reveal both an interesting influence of particle size on mixture dynamics as well as a connection between observed flow regime and the development of fingering instability at the contact line of a particle- laden thin film.

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