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Surface tension models for particle laden thin films[1] JEFFREY WONG, LI WANG, ANDREA BERTOZZI, Univ of California - Los Angeles — We study viscous slurries on an incline, for which particles migrate in a fluid due to a combination of gravity-induced settling and shear-induced migration. The lubrication model for the bulk of the fluid is a hyperbolic system of conservation laws for the film height and particle concentration which exhibits in interesting behavior, including singular shock solutions corresponding to accumulation of particles at the front. The addition of surface tension to the model produces a a capillary ridge that is affected by the particle accumulation and in two dimensions leads to fingering instabilities. We compare this model to experimental results.

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