

Abstract Submitted
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An ADI Scheme for Particle-Laden Thin Film Flow in 2D¹

MATTHEW MATA, UCLA — We derive a semi-implicit numerical scheme for a lubrication model of particle-laden thin film flow in two dimensions. The scheme relies on an ADI process to handle the higher-order and advection terms, and an iterative procedure is utilized within each time step in order to improve the quality of the solution and the size of the time step. We compare computational results to laboratory experiments involving mixtures of silicon oil and glass beads on an incline. The results of the simulation agree qualitatively with the experiment and suggest some possible improvements to the model to achieve a quantitative match.

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