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Inviscid instability of two-fluid free surface flow down an incline SUKHENDU GHOSH, R USHA, IIT Madras, India, RAMA GOVINDARAJAN, TIFR Centre Interdisciplinary Science, India, OUTI TAMMISOLA, The University of Nottingham, UK — Film flow down an incline is known to display an interesting array of instabilities. Such flows are often stratified in viscosity, and this stratification can create or suppress instabilities. We examine how much of this occurs through an inviscid mechanism, by modeling the velocity profile as piecewise linear. Besides obtaining qualitative agreement between viscous and inviscid results we present several limiting cases. It is interesting to show that a variation in viscosity acts via an inviscid mechanism to stabilize or destabilize the flow.

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