

Slippage and the Morphology of Dewetting Polymer Films

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Abstract

We consider two examples where viscous polymer films dewet from a hydrophobic substrate, and investigate the effect of slippage at the liquid/solid substrate on the film dynamics and morphology. In the first example, we show how the presence of slip changes the rate at which the capillary rim that forms near the contact line dewets, and that it can promote the susceptibility of the rim / contact line against spanwise perturbations. In the second example (joint work with T. Witelski, K. Jacobs and R. Fetzer), we identify a new *strong* slip regime and find that the lubrication model for this regime can explain new experimental observed transitions of the rim shape from a spatially oscillatory to a monotonically decaying profile.