

Abstract Submitted
for the DFD12 Meeting of
The American Physical Society

Modeling the drainage of viscous bubbles CASEY BARTLETT, MATTHIEU SANTIN, JAMES BIRD, Boston University — The lifespan of viscous thin film bubbles are largely dictated by the drainage dynamics of the film. For large enough bubbles, these dynamics are driven by gravity and regulated by viscosity. Past models have assumed that these forces lead to a drainage velocity that increases monotonically with increasing angle from the center axis. Here we show alternative solutions more consistent with experimental data where drainage velocity is not monotonic. We use a combination of numeric and analytic approaches to determine the evolution of the film drainage and investigate if such evolution can be approximated with a self-similar profile. Finally we compare our model results to recent experimental data.

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Date submitted: 03 Aug 2012

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