

Abstract Submitted
for the DFD05 Meeting of
The American Physical Society

Pinch-off in Thin Liquid Lenses J.C. BURTON, P. TABOREK, University of California, Irvine — Pinch-off in conventional 3D droplets and bubbles have been of considerable recent interest. In 3D, pinch-off is driven by surface tension, and various flow regimes have been observed which depend on the viscosity and density ratios of the interior and exterior fluids. In contrast, 2D line tension alone can not drive a film to break apart. Liquid lenses provide an interesting intermediate case in which surface tensions are small and the geometry approaches 2 dimensions. We have developed an experimental system to reproducibly observe pinch-off in hydrocarbon liquid lenses. The shape of the pinch region is qualitatively different than that in 3D, and involves a hierarchy of multiple spontaneous singularities and satellite lenses. High-speed video will be shown which illustrates these phenomena.

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Date submitted: 05 Aug 2005

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