

Abstract Submitted
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Surfactant spreading on a thin fluid layer: visualization via fluorescence DAVID FALLEST, North Carolina State University, CHRISTOPHER FOX, Harvey Mudd College, ELLEN PETERSON, MICHAEL SHEARER, KAREN DANIELS, North Carolina State University — We perform quantitative measurements of the spreading of an insoluble surfactant on a thin layer of glycerin. We directly observe both the radial height profile of the spreading droplet and the spatial distribution of the fluorescently-tagged surfactant during the spreading process. The spreading circular layer of surfactant forms a capillary ridge at the leading edge, the peak of which spreads with $R \approx t^{1/4}$, in agreement with predictions based on the lubrication approximation of the Stokes equations (Jensen & Grotberg, 1992). In addition, the surfactant concentration is observed to have a peak which follows, then lags behind, the capillary ridge during spreading. The companion talk (to follow) will compare these results with numerical simulations and analysis.

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