

Abstract Submitted  
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**Coalescence of fluid droplets in freely-suspended smectic liquid crystal films**<sup>1</sup> CHEOL PARK, ZHIYUEN QI, JOSEPH MACLENNAN, MATTHEW GLASER, NOEL CLARK, University of Colorado — We have studied the coalescence dynamics of the lens-shaped fluid droplets embedded in freely suspended smectic A liquid crystal films. The early time expansion of the bridge connecting the merging domains as a function of the time from the onset of coalescence is measured using high speed video microscopy. Optical interference is used to extract the shape evolution of the coalesced droplet with the measured thickness profiles giving fundamental insights into the transport processes within the droplets before and after coalescence. We compare the early-time growth of the bridge between the droplets with 2D and 3D theoretical predictions and propose a model of the fluid flow between the droplets to explain the coalescence dynamics.

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Cheol Park  
University of Colorado

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