

Abstract Submitted
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Behavior of Focal Conic Defects in Shear Flow SOURAV CHATTERJEE, SHELLEY ANNA, Carnegie Mellon University — The rheology of layered liquids is influenced to a large extent by defects present in the system, especially in small gaps. Toroidal focal conic defects are a common type of defect in small molecule layered liquids. We present a study of the influence of flow on focal conic defects in smectic liquid crystals, generated by antagonistic boundary condition at the surfaces. The defects are confined in gaps of the order of tens of microns and are subject to simple shear. The sizes of the focal conic defects vary with the gap size, and hence visual observations are made as to how the gap influences the dynamics of the focal conic defects in a shear flow. We also observe instabilities in initially defect free samples that lead to the creation of defects. The results offer insight into the complex relationship between defects and flow.

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