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Defect dynamics in monodomain formation of a lyotropic chromonic liquid crystal under confinement XUXIA YAO, Georgia Tech, ALEJANDRO REY, McGill University, JUNG PARK, MOHAN SRINIVASARAO, Georgia Tech — Lyotropic chromonic liquid crystals are a relatively new class of liquid crystals. We have studied the process of monodomain formation and the associated defect dynamics of an anionic dye, Sunset Yellow FCF(SSY), under confinement in a flat capillary. SSY solutions were filled into a flat capillary by capillary action in isotropic phase and subsequently cooled to nematic state. Defect coarsening processes due to confinement include growth of small uniform domains, splitting of a center disclination line (+1) into two lines (+1/2), merging of uniform domains, and relaxation of defect curvature after pinch-off. Previously we studied the kinematics of a branch point involving a +1 and two +1/2 intersecting lines. Here we report on the collision of two such branch points and the subsequent emergence of two curved +1/2 lines that eventually coarsen into two parallel lines close to the edge of the capillary. A model that includes bending and tension line elasticity describes the branch point post collision and provides the means to assess viscoelastic moduli.

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