

Abstract Submitted
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Condensation of lyotropic chromonic liquid crystals by additives¹

LUANA TORTORA, H.-S. PARK, Liquid Crystal Institute, Kent State University, Kent, OH 44242, S.-W. KANG, Department of Physics, Kent State University, Kent, OH 44242, S. KUMAR, Department of Physics, Kent State University, Kent, OH 44242 and DMR NSF, K.V. KAZNATCHEEV, Canadian Light Source, SK S7N 0X4, Canada, O.D. LAVRETOVICH, Liquid Crystal Institute, Kent State University, Kent, OH 44242 — Lyotropic chromonic liquid crystals (LCLCs) are formed by molecules with rigid polyaromatic cores and ionic groups at the periphery that aggregate in water. Condensation of LCLCs can be driven by polyamines, organic salt and neutral polymers. At a suitable concentration of additives, a nematic LCLC demixes into a coexisting isotropic phase and a condensed phase with birefringence higher than that in the original N. By employing synchrotron X-ray scattering we demonstrate the formation of a columnar hexagonal (C) phase. Scanning transmission X-ray microscopy, LC PolScope and fluorescent confocal microscopy allow us to map the relative concentration of components in the condensed and isotropic regions. Both electrostatic and entropy effects contribute to the condensation.

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