

Abstract Submitted
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High Magnetic Field-Induced Birefringence in Lyotropic Chromonic Liquid Crystals T. OSTAPENKO, Kent State University, YU. NAS-TISHIN, Inst. for Phys. Opt., Lviv, Ukr., J.T. GLEESON, S.N. SPRUNT, O.D. LAVRETOVICH, Kent State University, P.J. COLLINGS, Swarthmore College — We studied the effect of magnetic-field induced birefringence of a 14% solution of disodium cromoglycate (DSCG) in water at temperatures above the nematic-isotropic coexistence region. According to Landau-deGennes mean field theory, we expect to find a linear relationship between the inverse of the induced birefringence, Δn , and the quantity $(T-T^*)$, where T^* is the stability limit of the isotropic phase. Using the 31 T resistive magnet at the National High Magnetic Field Laboratory, we observed that, as we increase the temperature above the coexistence region, we deviate from this linear dependence. Our data shows that Δn goes to zero, whereas Landau-deGennes predicts that Δn should decrease asymptotically. This may be due to the lack of isodesmic aggregate formation at a finite temperature above the coexistence region.

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