Abstract Submitted
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Adding Mono- and Multivalent Ions to Lyotropic Chromonic Liquid Crystals LUANA TORTORA, HEUNG-SHIK PARK, KELLY ANTION, CHRIS WOOLWERTON, DANIELE FINOTELLO, OLEG LAVRENTOVICH, Kent State University — Lyotropic Chromonic Liquid Crystals (LCLCs) are a distinct class of liquid crystals formed in aqueous solutions by molecules with rigid polyaromatic cores and ionic groups at the periphery [1-4]. The phase diagrams of these materials should depend on entropic factors (as in the Onsager model) and electrostatic interactions. Using optical polarizing microscopy, we studied the effects of mono- and multivalent ions on the phase diagrams of Blue 27 [3] and Sunset Yellow [2]. The monovalent ions change the temperatures of phase transitions, as described in [4], while the effect of multivalent ions is more dramatic and, in addition to the changed temperatures of phase transitions by tens of degrees, it often involves condensation of LCLC aggregates into domains with birefringence much higher than that in a normal nematic phase. Work supported by OBR B-7844. [1]J. Lydon, *Current Opin. Colloid & Interface Sci.* **3**, 458 (1998);**8**, 480-489 (2004); [2]V. R. Horowitz, L. A. Janowitz, A. L. Modic, P. J. Heiney, and P. J. Collings, 2005, *Phys. Rew. E* **72**, 041710; [3]Yu. A. Nastishin, H. Liu, T. Schneider, T., V. Nazarenko, R. Vasyuta, S. V. Shiyanovskii, and O. D. Lavrentovich, 2005, *Phys. Rev. E* **72**, 041711; [4]A.F. Kostko, B. H. Cipriano, O. A. Pinchuk, L. Ziserman, M. A. Anisimov, D. Danino, and S. R. Raghavan. J. Phys. Chem. B **109**, 19126-19133 (2005)

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