

Abstract Submitted  
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**Effect of ionic additives on elasticity of lyotropic chromonic liquid crystal**<sup>1</sup> SHUANG ZHOU, Liquid Crystal Institute and Chemical Physics Interdisciplinary Program, Kent State University, Kent, Ohio 44242, ADAM J. CERVENKA, Bates College, Lewiston, ME 04240, YOGESH SINGH, Department of Physics, Kent State University, Kent, Ohio 44242, LUANA T. TORTORA, Liquid Crystal Institute and Chemical Physics Interdisciplinary Program, Kent State University, Kent, Ohio 44242, CARMEN C. ALMASAN, Department of Physics, Kent State University, Kent, Ohio 44242, OLEG D. LAVRENTOVICH, Liquid Crystal Institute and Chemical Physics Interdisciplinary Program, Kent State University, Kent, Ohio 44242 — Using a magnetic Frederiks transition technique, we determine how the splay  $K_1$  and bend  $K_3$  elastic constants of lyotropic chromonic liquid crystal Sunset Yellow (SSY) depend on concentration of ionic additives, sodium chloride (NaCl) and magnesium sulfate ( $\text{MgSO}_4$ ). Both salts increase the ratio  $K_1/K_3$ , by mainly increasing  $K_1$  ( $\text{MgSO}_4$ ) or mainly decreasing  $K_3$  (NaCl). The effects are attributed to the screening of electrostatic repulsions of chromonic molecules, which is expected to increase the contour length (thus increasing  $K_1$ ) and to decrease the persistence length (thus decreasing  $K_3$ ) of the chromonic aggregates in which the molecules are stacked face-to-face. As in salt-free SSY, the ratio  $K_1/K_3$  increases when the temperature decreases.

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