Abstract Submitted
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Elastic constants and material properties of novel shaped liquid crystals[1] M. SCHMITTHENNER, The College of Wooster, Wooster OH 44691, P.K. CHALLA, J.T. GLEESON, Kent State University, Kent OH 44240, S. GARG, The College of Wooster, Wooster OH 44691 — We report the Frank elastic constants along with other material properties of the newly synthesized liquid crystals RB01115 and RB01189. These materials are being investigated due to their Y and H-shaped structures respectively and possible biaxial nature of the latter. At T* = (T / T_{NI}) = 0.94, we found the extraordinary refractive index of RB01189 to be 1.548 while the ordinary index was 1.469. We applied magnetic fields to induce Freedericksz transitions in order to find the elastic constants and determined their values to be: $K_{11} = 0.12 \times 10^{-12}$ N, $K_{22} = 5.6 \times 10^{-12}$ N, and $K_{33} = 4.6 \times 10^{-12}$ N. For the Y-shaped RB0115 at T*=0.98, we found $K_{11} = 2.8 \times 10^{-12}$ N, $K_{22} = 2.5 \times 10^{-12}$ N, and $K_{33} = 4.5 \times 10^{-12}$ N. These constants are similar to values found for other materials with non-rod shaped or bent-core structure.

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