

Abstract Submitted  
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**Elastic constants and viscosities of a bent-core nematic liquid crystal studied by dynamic light scattering and magnetic Frederick transition**<sup>1</sup> MADHABI MAJUMDAR, Kent State University, PETER SALAMON, JAMES GLEESON, ANTAL JAKLI, SAMUEL SPRUNT, Kent State University — We present a study of determining absolute magnitudes of orientational Frank elastic constants and corresponding viscosities together with the viscoelastic ratios for director fluctuations in one of the bent-core nematic compounds *CIPbis10BB* by both the dynamic light scattering method and the magnetic and electric field induced director reorientation (Frederick transition). The values of the splay, twist and bend Frank elastic constants and viscosities are as follows  $K_{11}=3.4\times 10^{-7}$  dynes,  $K_{22}=3.4\times 10^{-8}$  dynes,  $K_{33}=1.8\times 10^{-7}$  dynes,  $\eta_{splay}=12P$ ,  $\eta_{twist}=4.1P$  and,  $\eta_{bend}=23P$ . Our result shows that the orientational elastic constants of the BCN studied are 3 to 5 times lower than those of typical calamitics (5CB) and  $K_{11}>K_{33}>>K_{22}$ . A dramatic enhancement of orientational viscosities (4 to 100 times larger than calamitics) was confirmed in BCNs.

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