Fluctuation Modes of a Bent-Core Nematic Liquid Crystal

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We present a dynamic light scattering study of the bent-core nematic liquid crystal compound \( DT6Py6E6 \). We utilize a “dark” scattering geometry, which allows us to search for fluctuation modes that are not purely associated with the uniaxial director. Indeed, we observe two modes (hydrodynamic and non-hydrodynamic) in addition to the expected twist-bend director mode. We present a model for the additional modes based on fluctuations of the biaxial order parameter, which leads to an estimate of 10-100 nm for the correlation length associated with these fluctuations.

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