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Investigation of B7 Liquid Crystal Undulation Texture[1] D. CHEN, M.A. GLASER, J.E. MACLENNAN, N.A. CLARK, Department of Phyasics, University of Colorado at Boulder, USA, E. KORBLOVA, D.M. WALBA, Department of Chemistry and Biochemistry, University of Colorado at Boulder, USA — In bent-core liquid crystals, the strong local preference for layering, coupled with the bent shape of the molecules, leads to two spontaneous symmetry-breaking instabilities: polar molecular orientational ordering and molecule tilt. These instabilities combine to produce chiral layered phases such as the B2 and B7 phases. In the B7 phase, layer undulation arise due to the formation of periodic polarization splay stripes [D. A. Coleman, *et al. Science* **301**, 1204 (2003)]. We have studied the topological defects in the B7 undulation texture obtained by freeze fracture transmission electron microscopy, and have observed dislocations and disclinations in the undulation texture analogous to those in the layered systems. Investigation of these defects gives insight into the B7 polarization splay stripe structure. A model is proposed to calculate the free energy of the defects.

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