A one order parameter tensor description of biaxial nematic liquid crystals XIAOYU ZHENG, Department of Mathematical Sciences, Kent State University , PETER PALFFY-MUHORAY, Liquid Crystal Institute, Kent State University — We present a simple one order parameter tensor mean field theory of biaxial nematic liquid crystals. We construct the free energy from molecular interactions, identify the components of the order parameter tensors, and obtain self-consistent equations, which are then solved numerically. The phase behavior is described via a 3D phase diagram. We discuss the connection between molecular properties and the coefficients in the Landau expansion.

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