

Numerical Modeling of Liquid Crystal Devices

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Numerical modeling tools are widely used in the design and optimization of devices based upon liquid-crystal materials. These include display devices as well as other applications (such as beam-steering devices). The modeling typically requires two stages: first, the computation of the equilibrium molecular orientational properties in the liquid-crystal layer (which determine the spatially varying optic axes of the uniaxial-crystal-like material), and second, the calculation of the transmission and reflection of light propagating through this inhomogeneous, anisotropic medium. We report on work in progress to adapt techniques from computational electromagnetics to the numerical solution of the latter problem.

Presented by Chuck Gartland