Abstract Submitted
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Electrooptic response of chiral nematic with conical helicoidal director deformation[1] OLEG LAVRENTOVICH, JIE XIANG, SERGIJ SHIYANOVSKII, Liquid Crystal Institute, Kent State University, CORRIE IMRIE, Department of Chemistry, University of Aberdeen — Electrically induced reorientation of liquid crystal (LC) director caused by dielectric anisotropy is a fundamental phenomenon widely used in modern technologies. We report on the experimental observation of an electrooptic effect with a distinct conical helicoid deformation of the director. The effect is observed in a chiral nematic in which the ground state of the director represents a right-angle helicoid. Application of the electric field along the helicoid axis transforms it into an oblique-angle helicoid. Further increase of the field causes complete unwinding into a uniaxial nematic state, in agreement with the theory proposed by R.B. Meyer in 1968. The effect is observed in a dimer nematic material in which the bend elastic constant is smaller than its twist counterpart.

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