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► Local Optical Spectra and Texture for Ch ....



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# Local Optical Spectra and Texture for Chiral Nematic Liquid Crystals in Cells with Interdigitated Electrodes

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## Abstract

A microspectrophotometer was used to measure reflection spectra of cholesteric liquid crystals (CLCs) in cells with interdigitated electrodes as a function of applied voltage in order to probe the spatial variation in behavior in the electrode and gap regions. Complex changes in the optical spectra are observed in the gap regions for cells in which the electric field magnitude changes significantly through the thickness of the cell. This leads to a non-uniform helix unwinding and pitch gradient in the cell. In cells with smaller field gradients, the unwinding occurs in a uniform manner and it is possible, under certain conditions, to distinguish discrete changes in pitch, corresponding to a decrease in the number of half-turns of the helical structure in the cell.

**Q Keywords:** Cholesteric liquid crystals   interdigitated electrodes   helix unwinding   microspectrometer

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