

Abstract Submitted
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Electrically Tunable Chiral Materials for Spatial Light Modulators SHIN-YING LU, LIANG-CHY CHIEN, Chemical Physics Interdisciplinary Program and Liquid Crystal Institute, Kent State University — An electrically tunable chiral material is being used to develop a spatial light modulator in which the spectral wavelength is controlled by an electric field. We prepared a cholesteric liquid crystal cell by using a nematic host doped with chiral dopants. Upon applying an ac electric field parallel to the helical axis, different textures can be obtained. In addition to obtaining transitions among cholesteric textures by amplitude modulation, in this work we develop a scheme of switching the cholesteric liquid crystal among different textures and the reflected wavelength. We also analyzed the issue of the frequency and amplitude dependent behavior of cholesteric texture. With the combination of the amplitude and frequency modulation, reflected light with different wavelength is observed. This device can be operated in various spectrum regions as an optical filter. Furthermore, the device has good potential in display applications

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