

Abstract Submitted
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4 x 4 Matrix Method Simulations of Swinging Nematic Liquid Crystals IGHODALO IDEHENRE, Univ of Dayton, DEAN EVANS, Air Force Research Laboratory, PARTHA BANERJEE, Univ of Dayton, TIMOTHY BUNNING, Air Force Research Laboratory — We present the results of numerical simulations of swinging nematic liquid crystal (SNLC) systems using the 4 x 4 Berreman matrix method. SNLCs are a special class of cholesteric liquid crystals that periodically change handedness when propagating along the helical axis. Unlike standard cholesterics which can only reflect one circular polarization state allowing the other to pass, SNLCs are able to reflect both simultaneously. Our simulations explore the advantages and disadvantages of various periodic functions (sinusoidal, square wave, triangular, etc. . .), the influence of pitch and optical birefringence on the reflection central wavelength and bandwidth, as well as the overall impact incidence angle has on the reflection spectra.

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