Optical bandgaps for a Cholesteric Elastomer Slab Under Stress

JUAN REYES CERVANTES, MARGARITA RIVERA, Universidad Nacional Autónoma de México — Using the equilibrium configuration adopted by a cholesteric elastomer elongated by the influence of a uniaxial transverse stress, we calculate the solution of the boundary–value problem for the reflection and transmission of obliquely incident plane waves due to a elastomer slab. We find a left-circularly polarized thin reflection band immersed in a wider right- circularly polarized band reflection, when the elastomer is under a stress near to the critical value. Also, a deformation of the reflection band and the reduction of its bandwidth were obtained. These bandgap features suggest to design a finely tuning polarization-universal optical filter.