Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Optical band gap in a nanocomposite structurally chiral medium CARLOS AVENDAO, Universidad Autnoma de la Ciudad de Mxico, ADRIN REYES, JONATAN MENDOZA, Universidad Nacional Autnoma de Mxico — We analyzed the optical band gaps for axially propagating electromagnetic waves throughout a nanocomposite structurally chiral medium. This medium is made of metallic nanoballs (silver) randomly dispersed in a structurally chiral material whose dielectric properties can be represented by a resonant effective uniaxial tensor. The structurally chiral material is taken to possess locally a $\bar{4}2m$ point group symmetry. We found that the band gap properties of the periodic system depends strongly on the volume fraction of nanoparticles in the chiral matrix. Particularly, we observed splitting of the bands and the creation of new sub band gaps when the resonance frequency of the composite medium lies within the band gap without inclusions.

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Date submitted: 10 Nov 2016 Electronic form version 1.4