

Abstract Submitted
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Transmission Characteristics of a Composite Polymer-Metal Phononic Crystal EZEKIEL WALKER, University of North Texas, DELFINO REYES, Universidad Autónoma del Estado de México, ARKADY KROKHIN, ARUP NEOGI, University of North Texas — Phononic crystals are ordered arrangements of two or more materials with differing mechanical properties, such as the density or elastic bulk modulus. The variation in the mechanical properties of the materials, combined with the size, shape, and arrangement of the materials gives rise to highly dispersive transmission characteristics for impinging elastic waves that can result in transmission stop gaps, or metamaterial properties. Hydrogel polymers are unique in that they possess highly anomalous mechanical properties that are responsive to external stimulus. Thus, these polymers are of interest for their potential to be combined with phononic crystals to form a stimulus responsive phononic crystal. Here the findings of a composite polymer-metal phononic crystal will be presented.

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