



## Broandband vibration-isolating metamaterial for MRI-induced vibrations.

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The magnetic resonance imaging (MRI) is important diagnostic tool in medical field. The vibration generated from the gradient coil of MRI scanner can influence the imaging quality. The study explores the elastic metamaterial to attenuate MRI induced vibrations. The elastic metamaterials having embedded scatterers can significantly attenuate the wave propagation by opening a local resonance induced bandgaps. In this study the wave propagation properties in term of bandgap and wave propagation for elastic metamaterial are analysed. The mechanism of generation of bandgap is carefully investigated and influence of different parameters on the bandgap is examined. The finite element analysis of the elastic metamaterial is investigated to validate the bandgaps with transmission loss in the periodic structure.