

Asymptotic model for the Rayleigh wave for seismic metasurfaces

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Seismic metasurfaces, comprised of an elastic half space with attached systems of resonators, affecting the Rayleigh wave propagation, are discussed. The formulation relies on the asymptotic model for the Rayleigh wave involving a hyperbolic equation on the surface. The considered oscillators include mass-spring systems, rods and beams. The effect of anisotropy is also investigated. The associated dispersive behaviours are illustrated numerically. In case of a flexural metasurface the effect of boundary conditions on the width of band gaps is noted.