

Extensional wave propagation in elastic layered composites as thickness waves superimposed on membrane carrier waves

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ABSTRACT

Time-harmonic extensional wave propagation in a symmetric layered composite is considered. The bi-material composite consists of isotropic elastic materials. In each layer the displacement components are considered as thickness motions superimposed on a membrane carrier wave as proposed by Achenbach (1998). The dispersion relation is obtained by formulating the boundary problem and the use of the propagator matrix technique. Numerical examples of dispersion curves are presented.

Keywords: dispersion curves, dispersion relation, layered composite, wave propagation.