

Caviglia, G.; Morro, A.

Wave propagation in multilayered anisotropic solids. (English) Zbl 1210.74093
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Summary: Time-harmonic wave propagation is investigated in multilayers given by a sequence of inhomogeneous layers separated by discontinuity surfaces. The equations governing the dynamics of solids are considered through a system in a Stroh-like form. Next a wave-splitting procedure is applied which is based on the use of the eigenvectors of the matrix associated with the system. The reflection and transmission matrices are defined. Their jumps at a discontinuity surface are derived as well as the (Riccati) evolution equations in smooth domains. The reflection and transmission matrices of a multilayer are obtained. By way of application, different configurations of an isotropic multilayer are considered along with the limit case of a thin layer through the Riccati equation. The generality of the approach allows for dissipative materials without any restrictions to material symmetries.

MSC:

[74J10](#) Bulk waves in solid mechanics
[74E10](#) Anisotropy in solid mechanics
[74J20](#) Wave scattering in solid mechanics

Cited in **3** Documents

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