AN ANISOTROPIC ELECTROMAGNETIC-ELASTIC ANALOGY

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Abstract

An analogy is exhibited between results for electromagnetic waves in linear media which are both electrically and magnetically anisotropic (crystals) and results for finite amplitude elastic waves in deformed Mooney-Rivlin materials. More precisely, the results for elastic waves in deformed Mooney-Rivlin materials appear formally as a special case of the results for electromagnetic waves in electrically and magnetically anisotropic crystals. The analogy is used to formulate the problem of finding the wave speeds and the polarization directions of the finite amplitude elastic waves as an eigenvalue problem.

Key words and phrases: Electromagnetic waves, Electrically and magnetically anisotropic crystals, Mooney-Rivlin materials, Elastic waves.

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