Peculiarities of propagation of a plane elastic wave through a gradient layer

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Abstract

The problem of diffraction of a plane elastic wave by a gradient in the transverse direction layer is studied. The diffraction problem is reduced to a boundary value problem for the layer. The grid method is used for solving the resulting boundary value problem. Considered is diffraction of a plane longitudinal wave by the layer. The layer is composed of the following materials: plexiglas, steel as well as their linear combinations. Peculiarities of an amplitude-frequency characteristic of density of a normal component of an energy flow of a passed longitudinal wave are studied numerically. © 2013 IEEE.