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Peculiarities of elastic wave refraction from the layer with fractal distribution of density

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Abstract

In this study, we underline the peculiarities of the refraction problem of elastic waves from a layer with a fractal density distribution. The refraction problem is reduced to the system of ordinary differential equations with linear coefficients. Analytic solutions for each of its equations are found. The case for the layer with fractal density distribution is investigated numerically. Characteristic maxima of the reflected wave energy are outlined. Graphs illustrate the dependence of the reflected energy from self-similar properties of the fractal curve.

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Keywords

Elastic wave, Fractal interpolation, Refraction