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Seismic wave propagation in one-dimensional inhomogeneous media: the non-reflected cases

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The scattering of seismic waves in the inhomogeneous media provides an unique information about properties and characteristics of scattered layers used in the explored geophysics. Meanwhile in some cases, the scattering is low and this is explained by the big attenuation of seismic waves due to absorption. Here we suggest another mechanism to explain the weak scattering related with existence of specific "non-reflected" layers where the waves can propagate with no inner reflection. It is based on mapping of variable-coefficient wave equation to the constant-coefficient Klein-Gordon equation for specific configuration of density and wave speed. Some applications to describe the real Earth's stratification by the non-reflective layers are given.