

Inverse resonance problem for Love elastic waves

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16/06/2022

An Inverse resonance problem consists in the (unique) retrieval of a differential operator from its eigenvalues and resonances. Using a semi-classical approach, we are able to decouple the elastic wave equation into a Love scalar equation and into a Rayleigh matrix equation. There are only few examples of inverse resonance problems solved in the literature.

In this talk I will present the resolution of the inverse resonance problem for the Love scalar elastic waves, which physically means the reconstruction of the elastic parameters of the medium below the Earth's surface from measurements of velocities of resonant waves on the Earth's surface. The retrieval of the elasticity of the medium is made by means of exponential type function theory and some results from spectral theory.