

Seminar of the Work Group
Nonlinear Partial Differential Equations
WS 21/22

Speaker: Dr. Lucrezia Cossetti
December 14th, 2021, 14:00 - 15:30
Zoom Link: <https://kit-lecture.zoom.us/j/5732649920>
Meeting ID: 573 264 9920

Eigenvalue bounds and spectral stability of Lamé operator with complex potential

KIT

Abstract

In this talk I will show how to get quantitative bounds on the location of eigenvalues, both discrete and embedded, of the non-self-adjoint Lamé operator of elasticity in terms of suitable norms of the potential. In order to do that we will use a nowadays well-oiled machinery based on the use of the Birman-Schwinger principle together with suitable uniform resolvent estimates. To emphasise the challenging feature of problems involving non-self-adjoint operators, we will show how, in the self-adjoint framework, such spectral enclosures are easily obtained as a consequence of the variational characterisation of the spectrum (no-longer available in a complex-valued context) and Sobolev inequalities.

The talk is based on the following two works:

- L. Cossetti, Bounds on eigenvalues for perturbed Lamé operators with complex potentials, *Math. Eng.* 4 (2021), 5, 1-29
- B. Cassano, L. Cossetti, L. Fanelli, Eigenvalue bounds and spectral stability of Lamé operator with complex potentials, *Journal of Differential Equations* 298 (2021), 528-559