

A collection of spectral convergence results for high order elliptic operators

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Abstract

This talk is about some recent results regarding the convergence of the eigenvalues and eigenfunctions of high order elliptic differential operators subject to singular domain perturbations. The main focus is on intermediate boundary conditions, for which general spectral convergence results are very recent. I will present a sharp geometrical condition on the domain perturbations that guarantees the spectral stability of high order elliptic operators, improving, in the case of polyharmonic operators of higher order, conditions known to be sharp in the case of fourth order operators. The optimality of the condition is proved by analyzing in detail a boundary homogenization problem for polyharmonic operators subject to homogeneous boundary conditions of intermediate type.

Based on joint works with J.M. Arrieta and P.D. Lamberti.

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