

Eigenvalues of poly-harmonic operators on variable domains

Davide Buoso (University of Padova)

We consider a class of eigenvalue problems for poly-harmonic operators, including Dirichlet and buckling-type eigenvalue problems. We prove an analyticity result for the dependence of the symmetric functions of the eigenvalues upon domain perturbations and compute Hadamard-type formulas for the Frechét differentials. We also consider isovolumetric domain perturbations and characterize the corresponding critical domains for the symmetric functions of the eigenvalues. Finally, we prove that balls are critical domains.

Joint work with Pier Domenico Lamberti.