

Identification of cavities and inclusions in linear elasticity with a phase-field approach

Elisabetta Rocca

University of Pavia

email: elisabetta.rocca@unipv.it

Abstract

In this talk we present the inverse problem of the shape reconstruction of cavities and inclusions embedded in a linear elastic isotropic medium from boundary displacement's measurements. For, we consider a constrained minimization problem involving a boundary quadratic misfit functional with a regularization term that penalizes the perimeter of the cavity or inclusion to be identified. Then using a phase field approach we derive a robust algorithm for the reconstruction of elastic inclusions and of cavities modelled as inclusions with a very small elasticity tensor. This is a joint work with A. Aspri, E. Beretta, C. Cavaterra, M. Verani.