

Eric Bonnetier

Title:

Small boundary perturbation of an elliptic equation

Abstract:

There has been a lot of work in the past decades on deriving asymptotic expansions of the solution to an elliptic PDE in the presence of small inclusions. Such expansions can indeed be used to build efficient and stable algorithms for detecting inhomogeneities from boundary measurements. In this talk, we study the behavior of the solution to an elliptic equation when the boundary condition is perturbed on a small set ω_ε . We characterize the first term in the asymptotic expansion of the solution, in terms of the relevant measure of smallness of ω_ε . We give explicit examples when ω_ε is a small surface ball in \mathbb{R}^d , $d=2,3$.

This is joint work with Charles Dapogny and Michael Vogelius.