Direct Algorithms for Thermal Imaging of Small Inclusions

Habib Ammari

Ecole Polytechnique, France

ammari@cmapx.polytechnique.fr

Abstract

Our goal is to reconstruct a collection of small inclusions inside a homogeneous object by applying a heat flux and measuring the induced temperature on its boundary. Taking advantage of the smallness of the inclusions, we design efficient noniterative algorithms for locating the inclusions from boundary measurements of the temperature. We illustrate the feasibility and the viability of our algorithms by numerical examples. (joint work with E. Iakovleva, H. Kang, and K. Kim).

1