Numerical Analysis of Elliptic Inverse Problems with Interior Data

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A number of algorithms have been proposed and analyzed for estimating a coefficient in an elliptic boundary value problem. Most of the analysis has been done for the simple scalar BVP

$$\begin{aligned} -\nabla \cdot (a \nabla u) &= f \text{ in } \Omega, \\ a \frac{\partial u}{\partial n} &= g \text{ on } \partial\Omega. \end{aligned}$$

This talk will briefly discuss the results found in the literature for the scalar problem and then discuss extensions to the problem of estimating Lamé moduli in the system of linear isotropic elasticity.