Lipschitz stability for the electrical impedance tomography problem: the complex case.

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Abstract

We investigate the boundary value problem

$$\begin{cases} \operatorname{div}(\gamma \nabla u) = 0 & \text{in } \Omega \\ u = f & \text{on } \partial\Omega, \end{cases}$$

where γ is a complex valued L^∞ coefficient, satisfying a strong ellipticity condition. In Electrical Impedance Tomography, γ represents the admittance of a conducting body. An interesting issue is the one of determining γ uniquely and in a stable way from the knowledge of the Dirichlet-to-Neumann map Λ_γ. Under the above general assumptions this problem is an open issue.

In this talk we show that, if we assume a priori that γ is piecewise constant with a bounded known number of unknown values, then Lipschitz continuity of γ from Λ_γ holds. This is a joint work with Elisa Francini