

A "milder" version of Calderon's inverse problem with partial data

El Maati Ouhabaz

Bordeaux,
France

Given a general symmetric elliptic operator

$$L_a := \sum_{k,j=1}^d \partial_k(a_{kj}\partial_j) + \sum_{k=1}^d a_k\partial_k - \partial_k(\bar{a}_k\cdot) + a_0$$

we define the associated Dirichlet-to-Neumann (D-t-N) map with partial data, i.e., data supported in a part of the boundary. We prove positivity, L^p -estimates and domination properties for the semigroup associated with this D-t-N operator. Given L_a and L_b of the previous type with bounded measurable coefficients $a = \{a_{kj}, a_k, a_0\}$ and $b = \{b_{kj}, b_k, b_0\}$, we prove that if their partial D-t-N maps (with a_0 and b_0 replaced by $a_0 - \lambda$ and $b_0 - \lambda$) coincide for all λ , then the operators L_a and L_b , endowed with Dirichlet, mixed or Robin boundary conditions are unitarily equivalent.