
On the linearized anisotropic Calderon problem

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Abstract

The anisotropic Calderon problem is the inverse problem consisting in determining a metric on a compact Riemannian manifold with boundary from the Dirichlet-to-Neuman map. The resolution of the problem in a conformal class follows from a similar inverse problem on the Schrödinger equation and remains an open question in dimensions higher than 3. In previous works, we could solve this inverse problem under structural assumptions on the known metric (namely that it is conformal to a warped product with an Euclidean factor) and additional geometric assumptions on the transversal manifold. The proof of uniqueness relies on the high frequency limit in a Green identity involving pairs of complex geometrical optics solutions to the Schrödinger equation. This talk will be concerned with our attempts to remove the additional transversal assumptions on the geometry by refraining from passing to the limit. Unfortunately, this path only leads to partial results on the linearized problem for the time being, that is recovery of singularities of the potential in the transversal variables. This a joint work with Yaroslav Kurylev, Matti Lassas, Tony Liimatainen and Mikko Salo.

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