Complex analytic methods in inverse problems

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Abstract

In elliptic inverse problems the methods from geometric complex analysis and quasiconformal mappings have recently enabled striking advances and new breakthroughs, in particular in Calderon's problem in two dimensions. Indeed, for the planar elliptic PDE's with rough coefficients these methods seems unavoidable.

In this talk, based on joint works with M. Lassas and L. Pivrinta, we give a presentation of the quasiconformal approach to impedance tomography, including the degenerate setting. As a particular example, we study cloaking in two dimensions, and see how the methods of geometric complex analysis reveal us the limits of invisibility.