A Borg-Levinson Theorem for Magnetic Schrödinger Operators

Mourad Bellassoued

Université Tunis El Manar, ENIT-LAMSIN, Tunisie
mourad.bellassoued@enit.utm.tn

Abstract

This talk is concerned with uniqueness and stability issues for the inverse spectral problem of recovering the magnetic field and the electric potential in a Riemannian manifold from some asymptotic knowledge of the boundary spectral data of the corresponding Schrdinger operator under Dirichlet boundary conditions. The spectral data consist of some asymptotic knowledge of a subset of eigenvalues and Neumann traces of the associated eigenfunctions of the magnetic Laplacian. We also address the same question for Schrdinger operators under Neumann boundary conditions, in which case we measure the Dirichlet traces of eigenfunctions. In our results we characterize the uniqueness of the magnetic field from a rate of growth of the eigenvalues, combined with suitable asymptotic properties of boundary observation of eigenfunctions, of the associated magnetic Schrdinger operator. To our best knowledge this is the first result proving uniqueness from such general asymptotic behavior of boundary spectral data. (Joint work with Mourad Choulli, Dos Santos Ferreira, Yavar Kian, Plamen Stefanov)