An inverse stability result for non-compactly supported potentials by one arbitrary lateral Neumann observation

Mourad Bellassoued

ENIT Tunis,
Tunisie

In this talk we investigate the inverse problem of determining the time independent scalar potential of the dynamic Schrdinger equation in an infinite cylindrical domain, from partial measurement of the solution on the boundary. Namely, if the potential is known in a neighborhood of the boundary of the spatial domain, we prove that it can be logarithmic stably determined in the whole waveguide from a single observation of the solution on any arbitrary strip-shaped subset of the boundary.

In the present work we seek global stability in the inverse problem of determining the (non-necessarily compactly supported) zero-th order term (the so-called electric potential) of the dynamical Schrdinger equation in an infinite cylindrical domain, from a single lateral observation of the solution over the entire time span. But in contrast to [9], where the measurement is performed on a sub-boundary fulfilling the geometric control property expressed by Bardos, Lebeau and Rauch in [3], here we aim at proving that the measurement of the Neumann data can be limited to any arbitrary extended strip designed on the lateral boundary.

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