

Lipschitz stability for a piecewise linear Schrödinger potential from local Cauchy data

Eva Sincich

Università degli Studi di Trieste
`esincich@units.it`

Abstract

We consider the inverse boundary value problem for the stationary Schrödinger equation consisting in the determination of the potential q from local Cauchy data. In view of the well-known exponential ill-posedness of this problem we introduce the a-priori assumption on the unknown coefficient q of being piecewise linear on a given domain partition and we obtain a conditional Lipschitz stability result. No sign, nor spectrum condition on q is assumed, hence the present analysis encompasses the reduced wave equation at fixed frequency. This inverse problem arises, for example, in reflection seismology and inverse obstacle scattering problems for acoustic and electromagnetic waves. This is based on a joint work with G. Alessandrini, M. V. de Hoop and R. Gaburro.