

On increasing stability in the continuation and inverse problems for Helmholtz type equations

Victor Isakov, Wichita State University

victor.isakov@[wichita.edu](mailto:victor.isakov@wichita.edu)

We show that under some (pseudo)convexity conditions the stability estimates for solutions of the Cauchy problem are improving when frequency is increasing. We show a similar result for recovery of Schroedinger potential from the Dirichlet-to-Neumann map or scattering data. Without any convexity conditions (i.e. for general second order elliptic operators as principal parts) we demonstrate that the same improvement holds under some a priori bounds on "high frequency" part of the solution to the Cauchy problem. The proofs use energy estimates including Carleman ones. We give some numerical evidence and list open problems.