

Carlos Castro

Title:

Numerical reconstruction of the conductivity in the 3-d Calderon problem using the Born approximation

Abstract:

Reconstruction in the three-dimensional Calderon inverse conductivity problem can be reduced to the study of the inverse boundary problem for Schrödinger operators $-\Delta + q$. A suitable linearization of the inverse problem allows to define the so-called Born approximation. This provides a good reconstruction only for the high frequencies of q . In a recent work, we established a new formula relating this Born approximation with the Dirichlet to Neumann map and the momenta of q . Based on this formula, we give a new convergent iterative algorithm that improves the numerical reconstruction given by the Born approximation. We illustrate the process with numerical experiments for radial potentials.