

Extensions of the Calderón Problem for discontinuous complex conductivities

Ivan Pombo

CIDMA - Universidade de Aveiro
Portugal
ivanpombo@ua.pt

In this talk we present the inverse conductivity problem for complex conductivities with jumps. Our first result concerns the uniqueness for the complex conductivity with a jump along a closed curve. With the tools obtained in these case we explain our result for the case of various curves of discontinuity. For the study of this problem we model it as an interior transmission problem. To treat this problem several new concepts are required, such as an adaptation of the notion of scattering data, and the definition of admissible points, which permit the enlargement of the set of CGO incident waves. This will allow us to prove the reconstruction of the conductivity. Given that this are early results in this direction, we also present some of the footwork necessary to proceed further in this direction. Future ideas are to expand this work into three dimensions by usage of quaternionic analysis, and if time permits some foundations for this extension are established.