

Integral stability for Calderón Inverse Problem

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Abstract

Calderón inverse problem consists on the determination of the coefficient (the conductivity) of an isotropic elliptic equation in divergence form the Dirichlet to Neumann map (boundary measurements). The problem in the plane was solved in its full generality by K.Astala and L.Päiväranta in 2006 by means of quasiconformal mappings. However the arguments in the proof are difficult to quantify since they make strong use of the topological degree. Moreover existing counterexamples shows that the process is not stable in general in absence of continuity in the L^∞ norm.

I will discuss a recent joint work with A.Ruiz (Madrid) and A.Clop (Barcelona) were we show the stability of the process respect to the L^2 norm for coefficients lying in fractional Sobolev spaces. In the way, we had to investigate how quasiconformal mappings interact with these spaces, a topic of independent interest.