

Inverse Problems Network Meeting 6

Thursday, 12th December 2019 - Friday, 13th December 2019

University of Manchester

Abstract of Talk

STABILITY AND RECONSTRUCTION IN INVERSE PROBLEMS

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We discuss the issues of stability and reconstruction in inverse problems with a particular focus on Calderón's inverse conductivity problem. Given the ill-posedness of this inverse problem, it is necessary to reformulate the issue of stability (the continuous dependence of the conductivity from the data) within the theory of ill-posed problems. In this context by stability we mean the continuous dependence of the conductivity from the data when additional *a-priori* information on the unknown conductivity is available. Niculae Mandache, while visiting Slava Kurylev at Loughborough University, showed by example that, using as *a-priori* information on the conductivity any kind of bound on any finite number of its derivatives, the best possible stability is the logarithmic type. It seems therefore that in order to gain a better type of stability, one should introduce *a-priori* information of a different kind and that is physically meaningful to the application in mind. As is well known the matter of stability is of fundamental importance in the reliability of any reconstruction procedure since, in practice, the data of the problem will be affected by errors.