

Inverse Problems Network Meeting 4

Thursday, 17th January 2019 - Friday, 18th January 2019

Mall Room, Level 8 of the School of Mathematics, University of Leeds

Abstract of Talk

CONTROLLING SOLUTIONS OF ELLIPTIC PDES, AND APPLICATIONS TO INVERSE PROBLEMS

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The classical Runge approximation theorem states that an analytic function in a simply connected domain in the plane can be approximated locally uniformly by global analytic functions. More generally, it was observed by Lax and Malgrange in the 1950s that solutions of an elliptic PDE in a subdomain can be approximated by solutions in a larger domain, provided that a certain form of the unique continuation principle holds. These approximation properties can be used to control the profile and energy of solutions on certain parts of the domain, and they have been used in several ways in inverse problems. In this talk we will discuss some recent uses of the approximation property in inverse problems, including monotonicity methods for shape detection, stability analysis, and inverse problems for fractional equations.