

Identification of Conductivity in Elliptic equations using Deep Neural Networks

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The focus of this talk is on the numerical methods used to identify the conductivity in an elliptic equation. Commonly, a regularized formulation consists of a data fidelity and a regularizer is employed, and then it is discretized using finite difference method, finite element methods or deep neural networks. One key issue is to establish a priori error estimates for the recovered conductivity distribution. In this talk, we discuss our recent findings on using deep neural networks for this class of problems, by effectively utilizing relevant stability estimates.