



Workshop on Nonlinear Analysis and Control Theory in
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Some results on discrete inverse problems for partial differential equations

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Abstract

In this work, we are interested in the study of discrete inverse problems. We note that motivated by the relation of Unique Continuation Properties (UCP) with controllability and stabilization, and more recently with inverse problems, unique continuation properties have attracted a great attention from researchers. In this talk we will present some results of UCP for discrete problems, to do this, we derive a discrete quantitative propagation of smallness for discrete harmonic functions, in particular we obtain a three sphere inequality for harmonic functions. The proof of these results are based on a Carleman estimates for a finite difference approximation of Laplace operator in arbitrary dimension with boundary terms, in which the large parameter is connected to the mesh size.

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