

Title: Application of single NRT (no response test) to inverse boundary value problems

Abstract:

In this talk we propose reconstruction schemes of identifying an unknown cavity from single measurement on the boundary in a known electric or heat conductive medium or acoustic medium. Given single source which can have a small support over the boundary of a medium, but we have to distribute the detectors for the measurement all over the boundary. For the inverse boundary value problem with such a given measurement, we will show that single NRT idea combined with special testing functions can provide such reconstruction schemes. The single NRT was introduced by Potthast for inverse scattering of an single incident plane acoustic wave to recover the scattering support of an impenetrable scatterer. We can say that this scheme is a domain sampling method. Even though it is very nice to have such reconstruction schemes which work for general setup, these schemes are not easy to implement in general except some special cases.