

國立中山大學應用數學系

學術演講

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講題：Determination of polygonal inclusions from a single measurement
時間：2021/11/30 (Tuesday) 16:10 ~ 17:00
地點：理 SC4009-1 教室
茶會：15:30

Abstract

In this talk, I will present my recent achievements on the Calderón's problems using a single measurement as well as on the inverse scattering problems. My works concern mainly on the recovery of the geometrical shape of an inclusion while the conductivity coefficient is supposed to be piece-wisely constant. Mathematically speaking, it is about to study the inverse problems on the following partial differential system,

$$\begin{cases} \operatorname{div}((1 + (k - 1)\chi_D)\nabla u) = 0 & \text{in } \Omega, \\ u = \psi & \text{on } \partial\Omega, \end{cases} \quad (1)$$

where $k > 0$ is a known conductivity coefficient and $D \Subset \Omega$ is the unknown inclusion to determine from the boundary measurements $(u|_{\partial\Omega}, \partial_\nu u|_{\partial\Omega})$. I will give the stability results on two dimensional polygons. As an extension of the stability result, a partial uniqueness result on the smooth domains with high curvature point is as well as achieved. Moreover, the same technique applies on the inverse scattering problems and a result on the regularity of transmission eigenfunction is also deduced.

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