



# 数学科学学院杰出学者讲坛

## Inverse Scattering Problems in Wave Propagation



报告人：

**包刚 教授**

( 浙江大学 )

**时间：2018年11月23日 ( 星期五 ) 8:30-9:30**

**地点：上海数学中心106室**

### 摘要：

Inverse scattering problems arise in diverse application areas, such as geophysical prospecting, near-field and nano optical imaging, and medical imaging. For a given wave incident on a medium enclosed by a bounded domain, the scattering (direct) problem is to determine the scattered field or the energy distribution for the known scatterer. The inverse problem is to determine the scatterer from the boundary measurements of the fields. Although significant recent progress has been made for solving the inverse problem, many challenging mathematical and computational issues remain unresolved. In particular, the severe ill-posedness has thus far limited the scope of inverse problem methods in practical applications. In this talk, the speaker will first introduce several inverse scattering problems of broad interest and discuss recent developments in the mathematical and computational studies of the problems. Based on multi-frequency data, effective computational and mathematical approaches will be presented for overcoming the ill-posedness of the inverse problems. Selected mathematical and computational results will be highlighted. In addition, recent stability results for inverse scattering problems in elasticity will also be presented. The talk will be concluded by remarks on related topics and open problems.

### 简介：

包刚现为浙江大学数学科学学院教授、院长。1985年本科毕业于吉林大学数学系，1991年获得美国莱斯大学博士学位，1997年任美国佛罗里达大学副教授，1999年任密歇根州立大学教授。2009年入选中组部千人计划，2010年起在浙江大学数学系(学院)工作。包刚是国际上应用数学和计算数学领域研究数学物理反问题的学术领导人之一。他在波动方程反问题稳定性、麦克斯韦方程的散射与反散射问题等重要方向取得了一系列重要结果，在国际顶尖数学期刊 JAMS 等发表论文一百三十余篇。现任 Inverse Problems, SIAM J. Appl. Math., SIAM J. Numer. Anal., J. Differential Equations 等十余个国际知名期刊编委。包刚曾于 2003 年获冯康科学计算奖 2016 年当选美国工业与应用数学会会士。