

# 数学与系统科学研究院

## 计算数学所学术报告

报告人: **Assistant Prof. Hai Zhang**

*(Hong Kong University of Science and Technology)*

报告题目:

**Mathematical analysis of anomalous scattering of light by slit structures in metallic slabs**

邀请人: 黄记祖 副研究员

报告时间: **2018 年 4 月 2 日 (周一)**

**上午 10:00--11:00**

报告地点: **数学院科技综合楼**

**Z301 报告厅**

报告摘要:

**Since the discovery of the extraordinary optical transmission through nanohole arrays in metallic films by Ebbesen, a wealth of research has been**

**sparked in the experimental and theoretical investigation of the localized electromagnetic field enhancement and the optical transmission enhancement in subwavelength nanostructures. This remarkable phenomenon can lead to potentially significant applications in near-field imaging, bio-sensing, etc. However, there has been a long debate on the interpretation of the enhancement effect since Ebbesen's work. In addition, a quantitative analysis of the enhancement is still widely open. In this talk, using two-dimensional slits as a prototype, I will present mathematical studies of both the field enhancement and transmission enhancement in the subwavelength structures. Based upon the layer potential technique, asymptotic analysis and homogenization theory, the enhancement mechanisms for both the single slit and an array of slits are studied quantitatively.**

**欢迎大家参加！**