数学与系统科学研究院

计算数学所学术报告

报告人：**Prof. Aihua W. Wood**

(Air Force Institute of Technology)

报告题目：

Topics on electromagnetic scattering from cavities

邀请人：　　郑伟英 研究员

报告时间：**2013** 年 **6** 月 **14** 日（周五）

上午 **10:00-11:00**

报告地点：　　科技综合楼三层 **311**

计算数学所报告厅

Abstract:

The analysis of the electromagnetic scattering phenomenon induced by cavities embedded in an infinite ground plane is of high interest to the engineering community. Applications include the design of cavity-backed conformal antennas for civil and military use, the characterization of radar cross section (RCS) of vehicles with grooves, and the advancement of automatic target recognition. Due to the wide range of applications and the challenge of solutions, the problem has been the focus of much mathematical research in recent years.

This talk will provide a survey of mathematical research in this area. In addition I will describe the underlining mathematical formulation for this framework. Specifically, one seeks to determine the fields scattered by a cavity upon a given incident wave. The general way of approach involves decomposing the entire solution domain to two sub-domains via an artificial boundary enclosing the cavity: the infinite upper half plane over the infinite ground plane exterior to the boundary, and the cavity plus the interior region. The problem is solved exactly in the infinite sub-domain, while the other is solved numerically. The two regions are then coupled over the artificial boundary via the introduction of a boundary operator exploiting the field continuity over material interfaces. We will touch on both the Perfect Electric Conducting and Impedance ground planes. Results of numerical implementations will be presented.

欢迎大家参加！