

数学与系统科学研究院

计算数学所学术报告

报告人: **Dr. Jiuyi Zhu**

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报告题目:

**Nodal geometry of Steklov
eigenfunctions and quantitative
uniqueness**

邀请人: 赵旭鹰 博士

报告时间: 2017 年 1 月 4 日 (周三)

下午 16:00-17:00

报告地点: 科技综合楼三层

311 报告厅

Abstract:

The Steklov problem is an eigenvalue problem with its spectral parameter at the boundary of a compact Riemannian manifold. We consider the quantitative properties: Doubling inequality and nodal sets. We obtain the sharp doubling inequality for Steklov eigenfunctions on the boundary and interior of manifolds using delicate Carleman estimates. We can ask Yau's type conjecture for the Hausdorff measure of nodal sets of Steklov eigenfunctions on the boundary and interior of the manifold. I will describe some recent progress about this challenging direction. Motivated by the study of eigenfunctions, we consider the quantitative uniqueness of elliptic equations. The quantitative uniqueness is characterized by the order of vanishing of solutions, which describes quantitative behavior of strong unique continuation property. It is interesting to know how the norm of the potential functions and gradient potentials control the order of vanishing. We will report some recent progresses about quantitative uniqueness in different spaces for second order elliptic equations. Part of work is joint with Blair Davey, Chris Sogge and X.Wang.

欢迎大家参加！