SPEAKER:

Jiuyi Zhu, Louisiana State University

TITLE:

Bounds of nodal sets of eigenfunctions

ABSTRACT:
Motivated by Yau's conjecture, the study of the measure (sizes) of nodal sets (zero-level sets) of eigenfunctions has been attracting much attention. We investigate the nodal sets of Steklov eigenfunctions, Neumann eigenfunctions, and Dirichlet eigenfunctions in the domain and on the boundary of the domain. For the analytic domain, we show the sharp upper bounds of interior nodal sets for Steklov eigenfunctions, and the sharp upper bounds of the intersections of nodal sets with the boundary for Neumann and Dirichlet eigenfunctions. If time permits, we will discuss the unified way to obtain the sharp upper bounds of nodal sets for eigenfunctions of bi-Laplace equations, and upper bounds of nodal sets in elliptic periodic homogenization. Part of the work in the talk is joint with Carlos Kenig, Fang-Hua Lin and Jinping Zhuge.