

SPEAKER:

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TITLE:

Nodal domains for the Steklov eigenvalue problem

ABSTRACT:

The celebrated Courant nodal domain theorem for eigenfunctions of the Laplacian, for example on a planar domain with Dirichlet boundary conditions, states that the k th eigenfunction has at most k nodal domains. In other words, the complement of the zero set of the k th eigenfunction has at most k connected components. In this talk I'll introduce the spectral problem known as the Steklov problem, which arises from study of the Dirichlet-to-Neumann operator. I will then discuss analogues of the Courant nodal domain theorem - and some of its extensions - in the Steklov setting. A curious feature of this study is a duality between the Steklov eigenvalue problem and the eigenvalue problem for the Robin Laplacian. The work discussed in this talk is joint work with Asma Hassannezhad (University of Bristol).