

Séminaire d'analyse



Vendredi 2 décembre 2016

14h

Local VCH 2820

Conférencier

Mikhail Karpukhin (McGill U.)

Titre

Topological upper bounds for Steklov eigenvalues

Résumé

Steklov problem is a particular boundary problem associated with the Laplacian, where the spectral parameter relates boundary data of the harmonic function. Recently this problem has gotten a lot of attention due to its various applications : from electrical impedance tomography in medicine to free boundary minimal submanifolds in differential geometry. This talk focuses on topological upper bounds for Steklov eigenvalues on surfaces. In 1975 Hersch, Payne and Schiffer used the concept of conjugate harmonic functions on the complex plane to prove a sharp upper bound for Steklov eigenvalues on simply connected domains. In this talk by extending this concept to a more general setting, we generalise their result to obtain an upper bound for Steklov eigenvalues on orientable surfaces, which turns out to be better than previously known results. If time permits we discuss similar results for Steklov eigenvalues on the spaces of differential forms of Riemannian manifolds of arbitrary dimension.