

BI-CO MATHEMATICS COLLOQUIUM

Ailana Fraser

University of British Columbia
and Institute for Advanced Study

“Minimal Surfaces and Sharp Eigenvalue Bounds”

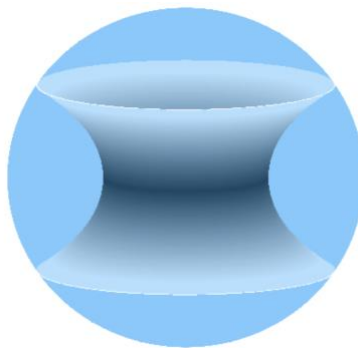
Monday, February 4, 2019

Talk at 4:00 – Park 338

Tea at 3:30 – Park 361, Math Lounge

Abstract:

When we choose a metric on a manifold, we determine the spectrum of the Laplace operator. Thus an eigenvalue may be considered as a functional on the space of metrics. For example, the first eigenvalue would be the fundamental vibrational frequency. In some cases, the normalized eigenvalues are bounded independently of the metric. In such cases it makes sense to attempt to find critical points in the space of metrics. For surfaces, the critical metrics turn out to be the induced metrics on certain special classes of minimal (mean curvature zero) surfaces in spheres and Euclidean balls. The eigenvalue extremal problem is thus related to other questions arising in the theory of minimal surfaces. In this talk, we will give an overview of progress that has been made for surfaces with boundary. This is joint work with R. Schoen.



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