

1108-35-240

**Alexandre Girouard, Richard S Laugesen\*** (laugesen@illinois.edu) and **Bartłomiej A. Siudeja**. *Steklov spectral estimation through quasiconformal mapping*.

Eigenvalues of the Steklov or Dirichlet-to-Neumann operator represent frequencies of vibration of a free membrane whose mass is concentrated at the boundary, and they arise also in sloshing problems.

We show the disk maximizes functionals of the Steklov eigenvalues, under normalization of the perimeter and a kind of boundary moment. The results cover the first eigenvalue, spectral zeta function and partition function. Interestingly, the method employs quasiconformal mapping to estimate the distortion of the energy functional (Dirichlet integral). (Received January 14, 2015)