SURESH ESWARATHASAN, Dalhousie University

Eigenvalues of ellipsoids close to spheres

We study the spectrum of the Laplace-Beltrami operator on $2D$ ellipsoids . For ellipsoids that are "close" to the $2D$ sphere, we use analytic perturbation theory (à la F. Rellich and M. Berger) to estimate the eigenvalues up to two orders with respect to the "closeness" parameter. We show that for biaxial ellipsoids sufficiently "close" to the sphere, the first N^2 eigenvalues have multiplicity at most two and characterize those that are simple. For a class of triaxial ellipsoids which are not biaxial, we prove the first sixteen eigenvalues are simple.

This is joint work with Theodore Kolokolnikov (Dalhousie University).