DIFFERENTIAL GEOMETRY/PDE/IP SEMINAR

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Padelford C-36
4–5PM

Inverse spectral problems for symmetric analytic domains in R^n

Hamid Hezari
(MIT)

We prove that bounded real analytic domains in R^n with the symmetries of an ellipsoid are determined by their Dirichlet or Neumann eigenvalues among other bounded real analytic domains with the same symmetries. Some non-degeneracy conditions are also imposed on the class of domains. This seems to be the first positive result on the well-known Kac problem, can one hear the shape of a drum?, in higher dimensions. We calculate some special spectral invariants called the the "wave invariants" which are defined from the the wave trace. We are able to establish our inverse results using our explicit formulas for the "wave invariants".

Joint work with: Steve Zelditch.

For more information about this seminar, visit the DG/PDE Seminar Web page (from the Math Department home page, `www.math.washington.edu`, follow the link **Seminars, Colloquia, and Conferences**).