Isospectral and Isotonal Manifolds Having Different Local Geometries

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(Tea 3:30 pm Math Lounge)

Abstract

Two Riemannian manifolds are said to be isotonal if the elements of the spectra are the same, but the multiplicities may be different. In this lecture we describe general non-continuous so-called σ-deformations which provide isospectral manifolds (closed as well as manifolds with boundaries) with different local geometries. These spaces have also the following spectral-geometric coincidences: (1) The geodesic balls as well as spheres with the same radius are isotonal. (2) The spectra on forms (i.e. the p-spectra with $p > 0$) are just isotonoal, on the whole spaces as well as on geodesics balls and spheres. The proof of these statements is based upon an explicit computation of the concerning spectra.

This talk should be accessible to graduate students.

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