1023-58-510 **Zoltan I. Szabo***, Lehman College, Dept. of Math., Bronx, NY 10468. *Isospectral metrics on balls, spheres, and other manifolds with different local geometries.*

The fundamental question in spectral geometry is: To what extend is the geometry of compact Riemann manifolds encoded in the spectrum of the Laplacian? In the talk the isospectrality examples constructed by the lecturer will be presented. Among them the most interesting are the isospectral metrics such that one of them is homogeneous while the other is locally inhomogeneous. Such examples have been found on spheres, and the Cartesian product of spheres with spheres and/or tori. They demonstrate the surprising fact that the group of isometries, even the local homogeneity property, is lost to the nonaudible in the debate of audible versus nonaudible geometry. The constructions are considered also regarding the Hodge Laplacian acting on forms. (Received September 15, 2006)