Masoud Khalkhali
Western University

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209

Spectral Invariants of Noncommutative Spaces

Spectral geometry asks the question "*can one hear the shape of a drum*?" While it is now known that the answer to this question in general is negative, one can still capture quite a few geometric invariants of a space in terms of eigenvalues of the Laplacian of the space. Most notably, volume, thanks to Weyl's asymptotic law, and total scalar curvature are among these invariants. Alain Connes realized that spectral geometry gives a method, and so far the only method, to define and probe geometric invariants of noncommutative spaces like *curved noncommutative tori*.

In this talk I shall sketch recent progress in this area and present some of the explicit computations that has been done so far.

University of Regina

Pacific Institute *for the* Mathematical Sciences