# Abstract

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"Spectrum of the sub-Laplacian and Laplacian on nilmanifolds attached to Clifford modules and isospectral, non-diffeomorphic manifolds"

The problem asked by Mark Kac in the paper

"Can one hear the shape of a drum?"(1966)

will be well-known widely as an initiation of spectral geometry and analysis (after Hermann Weyl?). Since then, there are many counter examples found or constructed.

In this talk I will give a new example of infinite series of pairs of such manifolds, isospecrtral but non-diffeomorphic. They are constructed by making use of Clifford algebra with respect to quadratic forms with arbitrary signatures and their modules. The contents will be focused how to determine the heat trace of the sub-Laplacians on such nilmanfolds.