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Section:

5. Differential Geometry and Global Analysis

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The isoperimetric profile of homogeneous Riemannian manifolds

We compute (up to a multiplicative constant) the isoperimetric profile of (non-compact) homogeneous Riemannian manifolds. From this geometric data, it is possible to deduce the asymptotic of the heat kernel on the diagonal. The result is obtained by studying the isometry group of the manifold. Besides the classical stucture theory of Lie groups, the tools come from works by Th. Coulhon, A. Grigor'yan, M. Gromov, L. Saloff-Coste, N. Varopoulos.

References: Ch. Pittet, Folner sequences in polycyclic groups, Revista Mathematica Iberoamericana, Vol.11, No.3, 1995, 675-685. Ch. Pittet, The isoperimetric profile of homogeneous Riemannian manifolds, in preparation.