

Bérard, Pierre; Gallot, Sylvestre

Inégalités isopérimétriques pour l'équation de la chaleur et application à l'estimation de quelques invariants. (Isoperimetric inequalities for the heat equation and application to the estimation of some invariants). (French) [Zbl 0542.53025](#)

Sémin. Goulaouic-Meyer-Schwartz 1983-1984, Équat. dér. part., Exposé No. 15, 34 p. (1984).

The authors first give an introduction, describing the various differential geometric notions, in particular curvatures. They then prove their main result giving estimates for the heat kernel on a Riemannian manifold, provided some geometric assumptions are satisfied. Their main tools are rearrangements of functions and symmetrization arguments combined with geometric isoperimetric inequalities. They also give a number of interesting geometric inequalities containing for example bounds for the Ricci curvature and the diameter of the manifold as well as inequalities for the eigenvalues of the Laplacian.

Reviewer: [R.Sperb](#)

MSC:

[53C20](#) Global Riemannian geometry, including pinching

[53C65](#) Integral geometry

[58J50](#) Spectral problems; spectral geometry; scattering theory on manifolds

Cited in **2** Reviews
Cited in **6** Documents

Keywords:

[heat kernel](#); [geometric isoperimetric inequalities](#); [Ricci curvature](#); [eigenvalues of the Laplacian](#)

Full Text: [Numdam](#) [EuDML](#)