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Let \((M, g)\) be a compact Riemannian spin manifold of dimension \(n \geq 3\). For such a manifold we can define the Dirac operator. The aim of the present paper is to study the influence of the spectrum of the Dirac operator on the geometry of the Riemannian spin manifold \((M, g)\). The most important result is that the spectrum of this operator can determine the geometry on the standard sphere \((S^n, g_0)\).

This paper contains five paragraphs. In the second paragraph we give basic properties for a spin-manifold and the Dirac operator associated to it. The spectrum of this operator is studied in the third paragraph. The fourth paragraph contains the influence of the spectrum of the Dirac operator on the geometry of a special Riemannian manifold. Finally, the last paragraph deals with the influence of the spectrum of this operator on the geometry of a special Kähler manifold.

**MSC:**
53C20 Global Riemannian geometry, including pinching
58J50 Spectral problems; spectral geometry; scattering theory on manifolds

**Keywords:**
compact Riemannian spin manifold; Dirac operator; spectrum