

# Positive scalar curvature and the Dirac operator on complete riemannian manifold

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## 1 Generalized Dirac Operators on a Complete Manifold

Let  $\text{Cl}(X)$  denote the **Clifford bundle** of  $X$ . This is the bundle over  $X$  whose fiber at a point  $x \in X$  is the Clifford algebra  $\text{Cl}(T_x X)$ . For the definition of Clifford algebra, we recommend the [website](#).

Furthermore, the riemannian metric and connection extend to  $\text{Cl}(X)$  with the properties that: covariant differentiation  $\nabla$  preserves the metric, and:

$$\nabla(\varphi \cdot \psi) = (\nabla\varphi) \cdot \psi + \varphi \cdot (\nabla\psi) \tag{1}$$

for all sections  $\varphi, \psi \in \Gamma(\text{Cl}(X))$ .