

The modified Clifford algebra

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1 The Clifford algebra

The Clifford algebra may be define with generators in a vector space E and relations:

$$e \otimes f + f \otimes e = -2g(e, f)$$

2 The modification of the Clifford algebra

We consider the modified Clifford algebra which is given by the following modified relations:

$$e \otimes X \otimes f + f \otimes X \otimes e = -2g(e, f)X$$

with e, f, X three vectors of the tensorial algebra of a vector space.

3 Applications

We suppose X parrallel for the Levi-Civita connection. We consider the Dirac operator:

$$D = \sum_i e_i \nabla_{e_i}$$

Then we deduce the following equation:

$$DXD = X\Delta + \Delta X + r$$

with Δ the Laplacian operator and r a scalar function.

References

- [F] T.Friedrich, "Dirac operators in Riemannian Geometry", Graduate Studies in Mathematics vol 25, AMS, 2000.
- [L] P.Lounesto, "Clifford Algebras and Spinors", London Mathematical Society, Lecture Note Series 239, 1997.