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Spin bundles and Dirac equation in FRW metric

In this work we construct a fiber bundle for Dirac spinors associated with the orthogonal frame bundle using a spinorial representation of the Lorentz group. From this geometric framework, we derive an expression for the spin connection and formulate the general covariant Dirac equation in curved spacetime (gravitational background). Finally, we specialize to a FRW metric in conformal time to get the Dirac equation in an expanding universe.

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