

Spinors I

Pre-Lecture Reading/Post-Lecture Summary

This will hurt a little more....

We will finally get to talk about one of the more abstract but important physical concepts, the spinor. We will develop the spinor as yet another representation of the rotation group through the approach of Lie Algebras. We will begin in the non-relativistic case and reproduce some of the results that may be familiar from your experience in quantum mechanics. In particular we will see the role of the Pauli matrices and their connection to the generators of rotations on spinors which take the form of $SU(2)$ transformations. Once we understand the transformations, we will investigate building invariants from spinors by constructing dual spinors. We will also begin a look at the relativistic case noting the unusual Lie algebra of the generators of Lorentz transformations. Then you will leave and be happy.