

1125-VA-2939

Jonathan Brown* (jonathan.brown@oneonta.edu). *The algebraic approach to spinor representation theory.*

This talk is the first talk in a two part series about spinor representations. Spinor representations play an important role in describing the fundamental properties of many particles in physics such as electrons. Mathematically spinor representations are certain finite dimensional irreducible representations of orthogonal Lie algebras. In this talk I will explain the algebraic approach to spinor representation theory. I will briefly go over the classification of finite dimensional irreducible representations of orthogonal Lie algebras via highest weight theory, and explain which highest weight finite dimensional representations are spinor representations. Next I will define Clifford algebras and I will explain how to embed orthogonal Lie algebras into Clifford algebras. Finally I will show how to use highest weight theory to decompose the Clifford algebra as a direct sum of irreducible orthogonal Lie algebra representations, which turn out to be the spinor representations. In the second talk of the series Kimmy Cushman will explain the significance of spinor representations in physics. (Received September 20, 2016)