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We discuss the subalgebra structure of $sl(3, \mathbb{O})$, a particular real form of E_6 chosen for its relevance to particle physics [1]. We use an explicit octonionic representation of the Lie group $SL(3, \mathbb{O})$ to produce the multiplication table of the corresponding algebra. We identify various subalgebras of the form $sl(n, \mathbb{F})$ and $su(n, \mathbb{F})$ within $sl(3, \mathbb{O})$, and we also find algebras corresponding to generalized Lorentz groups. We identify six Casimir operators in $sl(3, \mathbb{O})$, and produce a nested sequence of subalgebras and Casimir operators containing not only $su(3) \oplus su(2) \oplus u(1)$, corresponding to the Standard Model of particle physics, but also $so(3, 1)$, corresponding to the Lorentz group of special relativity.

1. Aaron Wangberg, *The Structure of E_6* , Ph.D. dissertation, Department of Mathematics, Oregon State University, 2007; available at <http://arxiv.org/abs/0711.3447>.

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