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Chris Kennedy* (christopher.kennedy@cnu.edu), Christopher Newport University, 1
University Place, Newport News, VA 23606. *Simple and Nearly Simple Deep Matrix Algebras.*

The deep matrix algebra $\mathcal{DM}(X, \mathbb{K})$ based on a set X over a field \mathbb{K} is a deeper version of a standard matrix algebra. We present several key associative subalgebras of $\mathcal{DM}(X, \mathbb{K})$, and use these in the construction and study of several deep matrix Lie algebras. These are shown to be either simple or nearly simple (possessing a unique non-zero proper ideal) depending on the cardinality of the set X . Cartan subalgebras are constructed and two of the Lie algebras are then decomposed with respect to the adjoint action of these subalgebras. In the process, an infinite dimensional analogue to $\mathfrak{sl}_2(\mathbb{K})$ is naturally realized as a key subalgebra in deep matrix Lie algebras. (Received September 12, 2008)