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 $\mathcal{D}M(X, \mathbb{K})$ 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 $\mathcal{D}M(X, \mathbb{K})$, 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)