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*Nonassociative algebra structures on representations of Lie algebras.* Preliminary report.

The decomposition of the exterior square of the irreducible representation $V(n,n)$ of the simple Lie algebra $\mathfrak{sl}(3)$ includes both $V(n,n)$ and $V(1,1)$. This allows us to define a nonassociative algebra structure on $V(n,n)$ with binary and ternary multiplication. We examine this situation for $n = 2,\ 3$, and 4.

We shall also examine nonassociative algebra structures whose binary multiplication arises from the decomposition of the exterior square of indecomposable representations of the Euclidean algebra. (Received September 19, 2007)