NON-SEMIGROUP GRADINGS OF ASSOCIATIVE ALGEBRAS

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Non-semigroup gradings (that is, "nonassociative" gradings over a set with a partial multiplication which cannot be extended to a semigroup) of Lie algebras have an interesting history. Following Lie algebras case, we construct associative algebras with non-semigroup gradings. The method for constructing such gradings utilizes δ-derivations, and is applicable to Lie, associative, and other classes of nonassociative algebras. We will also discuss many open questions.