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## "Finite W-algebras for Lie algebras and superalgebras"

## Abstract:

The finite W-algebras are certain associative algebras associated to a complex semisimple Lie algebra  $\mathfrak{g}$  and a nilpotent element e of  $\mathfrak{g}$ . A finite W-algebra  $W_e$  is a generalization of the universal enveloping algebra  $U(\mathfrak{g})$ . For e = 0,  $W_e$  is simply  $U(\mathfrak{g})$ . It is a result of B. Kostant that for a regular nilpotent element e,  $W_e$  coincides with the center of  $U(\mathfrak{g})$ .

We shall present some basic constructions of finite W-algebras, and show that certain results about them can be generalized for classical simple Lie superalgebras.