1079-17-153 **Elena Poletaeva*** (elenap@utpa.edu), Dept of Mathematics, University of Texas-Pan, American, 1201 West University Dr., Edinburg, TX 78539, and **Vera Serganova**. *Finite W-algebras for Lie superalgebras in the regular case.*

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

In the full generality, the finite W-algebras were introduced by A. Premet. His definition makes sense for a simple Lie superalgebra $g = g_{\bar{0}} \oplus g_{\bar{1}}$ in the case when $g_{\bar{0}}$ is reductive, g has an invariant symmetric bilinear form, and e is an even nilpotent element. However Kostant's result does not hold in this case.

We will show that certain results of A. Premet can be generalized for classical Lie superalgebras. We obtain the precise description of finite W-algebras for regular e for classical Lie superalgebras of Type I and defect one. We also present some partial results for the case $gl(n|n)$ and formulate a general conjecture about the structure of these algebras. (Received January 10, 2012)