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Elena Poletaeva* (elenap@utpa.edu), Department of Mathematics, University of Texas-Pan American, 1201 West University Drive, Edinburg, TX 78539. *On realizations of Lie superalgebras in matrices over a Weyl algebra.*

Superconformal algebras are superextensions of the Virasoro algebra. They are spanned by a number of fields, one of which is the Virasoro field. The $N = 2$ superconformal algebra, the big $N = 4$ superconformal algebra and the $N = 6$ superconformal algebra are spanned by 4, 16 and 32 fields, respectively. We obtain realizations of these Lie superalgebras in matrices of size 2, 4 and 8 over a Weyl algebra, which is generated by Laurent polynomials and a derivation d . These matrix realizations are closely connected with spin representations of the orthogonal Lie algebras.

$D(2, 1; \alpha)$ is a family of classical simple Lie superalgebras of dimension 17. It is related to the big $N = 4$ superconformal algebra. We also obtain realization of this family in matrices of size 4 over a Weyl algebra. (Received August 25, 2009)