

Fabio GAVARINI

“Chevalley Supergroups of type $D(2,1;a)$ ”

ABSTRACT

We present a construction “à la Chevalley” of connected affine supergroups associated with Lie superalgebras of type $D(2,1;a)$, for any possible value of the parameter a . This extends the results in [6] (and [7]) where all other simple Lie superalgebras of classical type were considered. The case of simple Lie superalgebras of Cartan type being dealt with in [9], so this work completes the program of constructing connected affine supergroups associated with any simple Lie superalgebra.

— — — — —
REFERENCES

- [1] J. Brundan, A. Kleshchev, *Modular representations of the supergroup $Q(n)$, I*, J. Algebra **206** (2003), 64–98.
- [2] J. Brundan, J. Kujawa, *A New Proof of the Mullineux Conjecture*, J. Alg. Combinatorics **18** (2003), 13–39.
- [3] Y. A. Bahturin, A. A. Mikhalev, V. M. Petrogradsky, M. V. Zaicev, *Infinite-dimensional Lie superalgebras*, de Gruyter Expositions in Mathematics **7** (1992), Walter de Gruyter & Co., Berlin.
- [4] C. Carmeli, L. Caston, R. Fiorese, *Mathematical Foundation of Supersymmetry*, EMS Series of Lectures in Mathematics **15** (2011), European Mathematical Society.
- [5] M. Duflo, *Private communication* (2011).
- [6] R. Fiorese, F. Gavarini, *Chevalley Supergroups*, Memoirs of the AMS **215** (2012), no. 1014.
- [7] R. Fiorese, F. Gavarini, *On the construction of Chevalley supergroups*, in: Supersymmetry in Mathematics & Physics (UCLA Los Angeles, U.S.A. 2010), Lecture Notes in Mathematics **2027** (2011), Springer-Verlag, Berlin-Heidelberg, 101–123.
- [8] L. Frappat, P. Sorba, A. Sciarrino, *Dictionary on Lie algebras and superalgebras*, Academic Press, Inc., San Diego, CA, 2000.
- [9] F. Gavarini, *Algebraic supergroups of Cartan type*, Forum Mathematicum (to appear), 92 pages.
- [10] J. E. Humphreys, *Introduction to Lie Algebras and Representation Theory*, Graduate Texts in Mathematics **9**, Springer-Verlag, New York-Heidelberg, 1972.
- [11] K. Iohara, Y. Koga, *Central extensions of Lie Superalgebras*, Comment. Math. Helv. **76** (2001), 110–154.
- [12] V. G. Kac, *Lie superalgebras*, Adv. in Math. **26** (1977), 8–26.
- [13] A. Masuoka, *The fundamental correspondences in super affine groups and super formal groups*, J. Pure Appl. Algebra **202** (2005), 284–312.

- [14] M. Scheunert, *The Theory of Lie Superalgebras*, Lecture Notes Math. **716**, Springer-Verlag, Berlin-Heidelberg-New York, 1979.
 - [15] B. Shu, W. Wang, *Modular representations of the ortho-symplectic supergroups*, Proc. Lond. Math. Soc. (3) **96** (2008), 251–271.
 - [16] V. S. Varadarajan, *Supersymmetry for mathematicians: an introduction*, Courant Lecture Notes **1** (New York University, Courant Institute of Mathematical Sciences, New York), American Mathematical Society, Providence, RI, 2004.
-