

R. Fiorese, F. Gavarini

“On the construction of Chevalley Supergroups”

in: *Supersymmetry in Mathematics and Physics*, pp. 101–123,
S. Ferrara, R. Fiorese, V. S. Varadarajan (eds.), UCLA Los Angeles, U.S.A. 2010,
Lecture Notes in Mathematics **2027**, Springer-Verlag, Berlin-Heidelberg, 2011

— DOI: 10.1007/978-3-642-21744-9_5 —

the original publication is available at
<http://www.springerlink.com/content/j378521716k7204p/>

ABSTRACT

We give a description of the construction of Chevalley supergroups, providing some explanatory examples. We avoid the discussion of the $A(1,1)$, $P(3)$ and $Q(n)$ cases, for which our construction holds, but the exposition becomes more complicated. We shall not in general provide complete proofs for our statements, instead we will make an effort to convey the key ideas underlying our construction. A fully detailed account of our work is scheduled to appear in [9].

— — — — —

REFERENCES

- [1] M. F. Atiyah, I. G. MacDonald, *Introduction to Commutative Algebra*, Addison-Wesley Publ. Comp. Inc., London, 1969.
- [2] J. Brundan, A. Kleshchev, *Modular representations of the supergroup $Q(n)$, I*, J. Algebra **206** (2003), 64–98.
- [3] J. Brundan, J. Kujava, *A New Proof of the Mullineux Conjecture*, J. Alg. Combinatorics **18** (2003), 13–39.
- [4] A. Borel, *Properties and linear representations of Chevalley groups*, in: *Seminar on Algebraic Groups and Related Finite Groups*, A. Borel et al. (eds.), Lecture Notes in Mathematics **131** (1970), 1-55.
- [5] C. Carmeli, L. Caston, R. Fiorese, *Mathematical Foundation of Supersymmetry - with an appendix with I. Dimitrov* (2011), EMS Ser. Lect. Math., European Math. Soc., Zurich.
- [6] P. Deligne, J. Morgan, *Notes on supersymmetry (following J. Bernstein)*, in: *Quantum fields and strings. A course for mathematicians*, Vol. 1, AMS (1999).

- [7] M. Demazure, P. Gabriel, *Groupes Algébriques, Tome 1*, Mason&Cie éditeur, North-Holland Publishing Company, The Netherlands, 1970.
 - [8] D. Eisenbud, J. Harris, *The Geometry of Schemes*, Graduate Texts in Mathematics **197**, Springer-Verlag, New York-Heidelberg, 2000.
 - [9] R. Fiorese, F. Gavarini, *Chevalley Supergroups*, Memoirs of the American Mathematical Society (to appear).
 - [10] M. Demazure, A. Grothendieck, *Schémas en groupes, III – Séminaire de Géométrie Algébrique du Bois Marie*, vol. 3, 1964.
 - [11] L. Frappat, P. Sorba, A. Sciarrino, *Dictionary on Lie algebras and superalgebras*, Academic Press, Inc., San Diego, CA, 2000.
 - [12] R. Hartshorne, *Algebraic geometry*, Graduate Texts in Mathematics **52**, Springer-Verlag, New York-Heidelberg, 1977.
 - [13] J. E. Humphreys, *Introduction to Lie Algebras and Representation Theory*, Graduate Texts in Mathematics **9**, Springer-Verlag, New York-Heidelberg, 1972.
 - [14] K. Iohara, Y. Koga, *Central extensions of Lie Superalgebras*, Comment. Math. Helv. **76** (2001), 110–154.
 - [15] J. C. Jantzen, *Lectures on Quantum Groups*, Grad. Stud. Math. **6**, Amer. Math. Soc., Providence, RI, 1996.
 - [16] V. G. Kac, *Lie superalgebras*, Adv. in Math. **26** (1977), 8–26.
 - [17] J.-L. Koszul, *Graded manifolds and graded Lie algebras*, in: *Proceedings of the international meeting on geometry and physics (Florence, 1982)*, Pitagora, Bologna, 1982, 71–84.
 - [18] Y. Manin, *Gauge field theory and complex geometry*, Grundlehren Math. Wiss. **289**, Springer-Verlag, Berlin-Heidelberg-New York, 1997.
 - [19] A. Masuoka, *The fundamental correspondences in super affine groups and super formal groups*, J. Pure Appl. Algebra **202** (2005), 284–312.
 - [20] M. Scheunert, *The Theory of Lie Superalgebras*, Lecture Notes Math. **716**, Springer-Verlag, Berlin-Heidelberg-New York, 1979.
 - [21] V. Serganova, *On generalizations of root systems*, Comm. Algebra **24** (1996), 4281–4299.
 - [22] R. Steinberg, *Lectures on Chevalley groups*, Yale University, New Haven, Conn., 1968.
 - [23] B. Shu, W. Wang, *Modular representations of the ortho-symplectic supergroups*, Proc. Lond. Math. Soc. (3) **96** (2008), 251–271.
 - [24] A. Vistoli, *Grothendieck topologies, fibered categories and descent theory*, in: *Fundamental algebraic geometry*, Math. Surveys Monogr. **123**, Amer. Math. Soc., Providence, RI, 2005, 1–104.
 - [25] 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.
-
-