ALGEBRAIC SUPERGROUPS ASSOCIATED WITH SIMPLE LIE SUPERALGEBRAS

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For any finite dimensional (complex) simple Lie superalgebra $\mathfrak{g}$, I provide an explicit recipe to construct an algebraic supergroupe G — defined via its functor of points - whose tangent Lie superalgebra is $\mathfrak{g}$ itself. To do that, I generalise the classical Chevalley method, which construct a (semi)simple algebraic group G_V starting from any complex, finite dimensional (semi)simple Lie algebra $\mathfrak{g}$ and from a faithful finite dimensional $\mathfrak{g}$–module V. I shall show that one can do the same when $\mathfrak{g}$ is replaced with a simple Lie supealgebra: first one introduces then a (super-analogue of the classical) notion of "Chevalley basis", then one proves the existence of these objects, and finally one implements the same method — up to some variations, of course. Remarkably enough, this strategy is successful both with the (simple) Lie superalgebras of classical type and with those of Cartan type - somehow extending the range of application of Chevalley's original idea. Time permitting, besides this "existence" result, I shall present also a "uniqueness" one: every connected algebraic supergroup whose Lie superalgebra be (finite dimensional) simple is isomorphic to one of the supergroups G_V that I just constructed. Thus one eventually finds a complete classification of such supergroups.