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Classification of Finite Dimensional Nilpotent Lie Superalgebras by their Multipliers

Let L be a nilpotent Lie superalgebra of dimension $(m \mid n)$ and

$$s(L) = \frac{1}{2}[(m + n - 1)(m + n - 2)] + n + 1 - \dim \mathcal{M}(L),$$

where $\mathcal{M}(L)$ denotes the Schur multiplier of L. Here $s(L) \geq 0$ and the structure of all non-abelian nilpotent Lie superalgebras with $s(L) = 0$ is known from a previous publication of the author [*Multipliers of nilpotent Lie superalgebras*, Comm. Algebra 47/2 (2019) 689–705]. This paper is devoted to obtain all nilpotent Lie superalgebras L when $s(L) \leq 2$. Further, we apply those results to list all non-abelian nilpotent Lie superalgebras L with $t(L) \leq 4$.

Keywords: Nilpotent Lie superalgebra, multiplier, special Heisenberg Lie superalgebra.

MSC: 17B30; 17B05.