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Derivations from the Even Parts into the Odd Parts for Lie Superalgebras W and S

Let $\mathcal{W}$ and $\mathcal{S}$ denote the even parts of the generalized Witt superalgebra W and the special superalgebra S over a field of characteristic $p > 3$, respectively. In this note, using the method of reduction on $\mathbb{Z}$-gradations, we determine the derivation space $\mathrm{Der}\,(\mathcal{W}, W_{\bar{1}})$ from $\mathcal{W}$ into $W_{\bar{1}}$ and the derivation space $\mathrm{Der}\,(\mathcal{S}, W_{\bar{1}})$ from $\mathcal{S}$ into $W_{\bar{1}}$. In particular, the derivation space $\mathrm{Der}\,(\mathcal{S}, S_{\bar{1}})$ is determined.

Keywords: Generalized Witt superalgebra, special superalgebra, derivation space, canonical torus.

MSC: 17B50, 17B40

1