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Journal of Lie Theory 32 (2022) 917–936

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On Lie Superalgebras with a Filiform Module as an Odd Part

The aim of this work is on one hand to characterise in any even dimension, via double extensions, a very special family of quadratic Lie superalgebras $\mathfrak{g} = \mathfrak{g}_{\bar{0}} \oplus \mathfrak{g}_{\bar{1}}$ such that $\mathfrak{g}_{\bar{1}}$ is a filiform $\mathfrak{g}_{\bar{0}}$ -module (filiform type). On the other hand, we show that the study of quadratic Lie superalgebras of filiform type can be reduced to those that are solvable. Moreover, we obtain an inductive description of solvable quadratic Lie superalgebras of filiform type via both double extensions and odd double extensions of quadratic ones.

Keywords: Lie superalgebras, quadratic Lie superalgebras, double extensions, solvable, filiform.

MSC: 17A70, 17B05, 17B30.