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A RESTRICTION ON THE SCHUR MULTIPLIER OF NILPOTENT LIE ALGEBRAS*

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Abstract. An improvement of a bound of Yankosky (2003) is presented in this paper, thanks to a restriction which has been recently obtained by the authors on the Schur multiplier $M(L)$ of a finite dimensional nilpotent Lie algebra L. It is also described the structure of all nilpotent Lie algebras such that the bound is attained. An important role is played by the presence of a derived subalgebra of maximal dimension. This allows precision on the size of $M(L)$. Among other results, applications to the non-abelian tensor square $L \otimes L$ are illustrated.

Key words. Schur multiplier, Nilpotent Lie algebras, Derived subalgebra, Non-abelian tensor product.

AMS subject classifications. 17B30, 17B60, 17B99.

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