Naturally Graded p-Filiform Lie Algebras in Arbitrary Finite Dimension

The present paper offers the classification of naturally graded $p$-filiform Lie algebras in arbitrary finite dimension $n$. For sufficiently high $n$, $(n \geq \max\{3p - 1, p + 8\})$, and for all admissible value of $p$ the results are a generalization of Vergne’s in case of filiform Lie algebras [Vergne, M., Cohomologie des algèbres de Lie nilpotentes. Application à l’étude de la variété des algèbres de Lie nilpotentes, Bull. Soc. Math. France 98 (1970) 81–116].

Keywords: Nilpotent Lie algebra, filiform, naturally graded.

MSC: 22E60, 17B30; 17B70