On Subvariety of Variety Generated by a Simple Infinite Lie Algebra of Cartan Type General Series W_2

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We consider numerical characteristics of Lie algebras variety over a field of characteristic zero, basically, the exponent of variety. Here, was constructed the infinite series of varieties of Lie algebras with different fractional exponents, which belong to variety generated by a simple infinite Lie algebra of Cartan type general series W_2.

Key words: variety of Lie algebras, identity, exponent of variety.

References

1. Bakhturin Iu. A. *Tozhdestva v algebrakh Li* [Identities in Lie algebras]. Moscow, Nauka, 1985, 448 p. (in Russian).
2. Giambruno A., Zaicev M. Polynomial Identities and Asymptotic Methods. *Mathematical Surveys and Monographs.* Providence, RI, American Math. Soc., 2005, vol. 122, 352 p.
3. Mishchenko S. S. New example of a variety of Lie algebras with fractional exponent *Russian Math.* [Moscow Univ. Math. Bull.], 2011, vol. 66, pp. 264–266.
4. Kirillov A. A., Molev A. I. *On the algebraic structure of the Lie algebra of vector fields.* Preprint no. 16. Moscow, In-t prikl. matematiki im. M. V. Keldysha AN SSSR, 1985, 23 p. (in Russian).
5. Malyusheva O. A., Mishchenko S. P., Verevkin A. B. Series of varieties of Lie algebras of different fractional exponents. *Compt. rend. Acad. Bulg. Sci.*, 2013, vol. 66, no. 3, pp. 321–330.