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Title: Free nilpotent Lie algebras and related topics

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Abstract: Any finite-dimensional Lie algebra of characteristic zero decomposes as a direct sum of a semisimple Lie algebra and its unique maximal solvable ideal. The classification of semisimple Lie algebras over the complex field was settled at the beginning of the last century. Arround 1945, A.I. Malcev [4] reduced the classification of complex solvable Lie algebras to the classification of nilpotent Lie algebras, their derivation algebras, groups of automorphisms and several invariants. But the classification of nilpotent algebras is a wild problem. In 1971 T. Sato [5] shows that any nilpotent Lie algebra is isomorphic to a quotient of a free nilpotent Lie algebra of the same nilindex and type. In this talk we will survey some recent research on nilpotent Lie algebras and its relationship to free nilpotent Lie algebras (see [1], [2] and [3]).

References

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