ON FAITHFUL REPRESENTATIONS OF NILPOTENT LIE ALGEBRAS WITHIN CERTAIN CATEGORIES

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We discuss versions of Birkhoff's theorem on faithful representations of nilpotent Lie algebras within a category $\mathcal{C}$ which can be any of the categories of finite-dimensional vector spaces, Banach spaces, or locally convex topological vector spaces. Thus, for nilpotent Lie algebras whose underlying vector space is an object of $\mathcal{C}$ we use suitable spaces of polynomial functions for constructing faithful representations by nilpotent operators on a suitable space which is again an object of $\mathcal{C}$.

Reference

[BB12] I. Beltiţă, D. Beltiţă, Faithful representations of infinite-dimensional nilpotent Lie algebras. *Forum Math.* (to appear).

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