Bolsinov, A. V.

Involutory families of functions on dual spaces of Lie algebras of type $G+_{\phi}V$. (English. Russian original) Zbl 0664.17006

Russ. Math. Surv. 42, No. 6, 227-228 (1987); translation from Usp. Mat. Nauk 42, No. 6, 183-184 (1987).

Let G be a semisimple (complex or real) Lie algebra, and π be its linear representation in a space V. Then π defines the Lie algebra $L = G + V$ which is a semidirect sum of G and V. If f and g are analytical functions on L^* then the formula $\{f, g\}(x) = (x, [df, dg])$ defines the Poisson bracket. One says that f and g are in involution if $\{$ f,g$\} \equiv 0$. The aim of the paper is the proof of the following statement: There is a full involutive set of functions on L^*, which consists of polynomials.

Reviewer: A.Klimyk

MSC:

17B05 Structure theory for Lie algebras and superalgebras
58D15 Manifolds of mappings

Keywords:

Lie algebra; semidirect sum; Poisson bracket; involution; involutive set of functions

Full Text: DOI