Khatskevich, Yu. G.

Automorphisms of semisimple real Lie algebras. (English. Russian original) Zbl 0707.17011

Funct. Anal. Appl. 23, No. 2, 156-157 (1989); translation from Funkts. Anal. Prilozh. 23, No. 2, 84-85 (1989).

Consider a simple complex Lie algebra $\mathfrak{g}^c$ with real form $\mathfrak{g}$. Let $Aut_e\mathfrak{g}^c$ be the group of all automorphisms of $\mathfrak{g}^c$ generated by the elements of the form exp ad x with nilpotent ad x. Let $Aut_0\mathfrak{g}$ be the inverse image of $Aut_e\mathfrak{g}^c$ with respect to the map Aut $\mathfrak{g} \to Aut\mathfrak{g}^c$, $g \mapsto g \otimes 1$, and $Aut_0(\mathfrak{g}, \mathfrak{h})$ be the subgroup of $Aut_0\mathfrak{g}$ preserving the Cartan subalgebra $\mathfrak{h} \subset \mathfrak{g}$. The author deduces a necessary and sufficient condition for certain pairs of $Aut_0(\mathfrak{g}, \mathfrak{h})$ to be conjugate.

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MSC:

17B40 Automorphisms, derivations, other operators for Lie algebras and super algebras
17B20 Simple, semisimple, reductive (super)algebras

Keywords:

quasi-inner automorphisms; conjugacy classes

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References:

[1] N. Bourbaki, Lie Groups and Lie Algebras [Russian translation], Mir, Moscow (1972), Chaps. 4-6. · Zbl 0249.22001

[2] N. Bourbaki, Lie Groups and Lie Algebras [Russian translation], Mir, Moscow (1978), Chaps. 7-8.

[3] R. Steinberg, Lectures on Chevalley Groups, Yale Univ. Press, New Haven (1968). · Zbl 1196.22001

[4] P. Carter, "Classes of conjugate elements in the Weyl group," in: Seminar on Algebraic Groups and Related Finite Groups (Inst. for Advanced Study, Princeton, 1968/69), Lecture Notes in Math., Vol. 131, Springer-Verlag, Berlin?New York (1970), pp. 297-318.

[5] S. Araki, Matematika,10, No. 1, 90-126 (1966).

[6] J. Carmana, Manuscr. Math.,10, 1-33 (1973). · Zbl 0274.22019 · doi:10.1007/BF01677006