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### **On Invariants of a Set of Elements of a Semisimple Lie Algebra**

Let  $G$  be a complex reductive algebraic group,  $\mathfrak{g}$  its Lie algebra and  $\mathfrak{h}$  a reductive subalgebra of  $\mathfrak{g}$ ,  $n$  a positive integer. Consider the diagonal actions  $G : \mathfrak{g}^n, N_G(\mathfrak{h}) : \mathfrak{h}^n$ . We study a connection between the algebra  $\mathbb{C}[\mathfrak{h}^n]^{N_G(\mathfrak{h})}$  and its subalgebra consisting of restrictions to  $\mathfrak{h}^n$  of elements of  $\mathbb{C}[\mathfrak{g}^n]^G$ .

**Keywords:** Semisimple Lie algebras, conjugacy of embeddings, invariants of sets of elements in Lie algebras.

**MSC:** 17B20, 14R20, 14L30