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ASSOCIATIVE AND LIE ALGEBRAS OF QUOTIENTS

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Abstract

In this paper we examine how the notion of algebra of quotients for Lie algebras ties up with the corresponding well-known concept in the associative case. Specifically, we completely characterize when a Lie algebra Q is an algebra of quotients of a Lie algebra L in terms of the associative algebras generated by the adjoint operators of L and Q respectively. In a converse direction, we also provide with new examples of algebras of quotients of Lie algebras and these come from associative algebras of quotients. In the course of our analysis, we make use of the notions of density and multiplicative semiprimeness to link our results with the maximal symmetric ring of quotients.

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