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Brešar, Matej; Perera, Francesc; Sánchez Ortega, Juana; Siles Molina, Mercedes
Computing the maximal algebra of quotients of a Lie algebra
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MSC Classification: 17B60 16W25 16W10

Keywords: Lie algebra; maximal algebra of quotients

Review text:
In the paper under review the authors compute the maximal algebra of quotients of Lie algebras arising from associative ones. Concretely, they prove that the maximal algebra of quotients of A^-/Z, $Q_{max}(A^-/Z)$, where A is a semiprime associative algebra with center Z, can be built as a quotient of the direct limit of derivations on essential ideals of A. In particular they prove that if A is a prime associative algebra of $char(A) \neq 3$, then $Q_{max}(A^-/Z)$ is contained between $Der(A)$ and $Der(Q_s(A))$, where $Q_s(A)$ denotes the Martindale ring of quotients of A. Similarly they compute $Q_{max}(K/Z_K)$ where K is the set of skew elements of a semiprime associative algebra A with involution $*$ and Z_k is the set of skew elements of A contained in the center of A. In a final section the authors (using an example given by Passman in [Passman, D. S. Computing the symmetric ring of quotients. J. Algebra 105 (1987), no. 1, 207–235.] where he proved that the Martindale ring of quotients is not a closure operation, i.e., $Q_s(Q_s(A))$ has not to be equal to $Q_s(A)$) give an example of a Lie algebra L such that $Q_{max}(L) \neq Q_{max}(Q_{max}(L))$.

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