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Multiplicative Lie triple higher derivations on generalized matrix algebras

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SUMMARY

Let N be the set of nonnegative integers and G = (A,M,N,B) be a 2-torsion free generalized matrix algebra over a commutative ring R. In the present paper, under some lenient assumptions on G, it is shown that if ? = ?nn?N is a se- quence of mappings ?n : G ? G (not necessarily linear) satisfying ?n([[a,b],c]) =

[[?r(a),?s(b)],?t(c)] for all a,b,c ? G, then for each n ? N, ?n = dn + ?n; r+s+t=n where dn : G ? G is an additive mapping satisfying dn (ab) = dr (a)ds (b) r+s=n for all a,b ? G, i.e., D = dnn?N is an additive higher derivation on G and ?n : G ? Z(G)(where Z(G) is the center of G) is a map vanishing at every sec- ond commutator [[a, b], c].

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