

Polynomial Identities of RA and RA2 Loop Algebras

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Let F be an algebraically closed field of characteristic 0.

We prove that the loop algebra FL of any RA loop L is in the variety generated by the split Cayley-Dickson algebra Z_F over the field F .

For RA2 loops of type $M(Dih(A), \cdot^{-1}, g_0)$, we prove that the loop algebra is in the variety generated by the algebra \mathcal{A}_3 which is a noncommutative simple component of the loop algebra of a certain RA2 loop of order 16. We remark also that the same does not hold for the RA2 loops of type $M(G, \cdot^{-1}, g_0)$, where G is a nonabelian group of exponent 4 having exactly 2 squares.

Reference

I. R. Hentzel, S. O. Juriaans, L. A. Peresi, Polynomial identities of RA and RA2 loop algebras, *Comm. Alg.*, accepted (2005).