ZERO DIVISORS IN INTEGRAL LOOP ALGEBRAS

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In this paper we introduce a new class of loops called Jordan loops and obtain a method of constructing Jordan algebras using Jordan loops. We mainly study the zero divisors of the integral loop algebras, which are loops over the ring of integers analogous to the integral group algebras, which are groups over the ring of integers. It is interesting to note in case of integral loop rings an element of finite order in the loop may give rise to left zero divisor or right zero divisor which is a distinct behaviour different from group algebras. We conclude the paper by putting forth two unsolved problems,

Does there exist zero divisors in integral loop algebras other than those contributed by the elements of finite order?

If the loop has no elements of finite order can the integral loop algebra have proper zero divisors?