S- ELEMENTS IN NON-ASSOCIATIVE RINGS

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In this paper we introduce the notion of S-zero divisors, S-units, S-nilpotents, S-idempotents, S-normal elements, S-semi idempotents, S-quasi regular elements in a non-associative ring which we take mainly as a loop ring. We prove let $Z_p = \{0, 1, \ldots, p - 1\}$ be the prime field of characteristic p (p > 2), $L_n(m)$ be the loop where we choose n = p. Then

$$\alpha = 1 + g_1 + \ldots + g_n$$

and

$$\beta = \left(\frac{p+1}{2} + \frac{p+1}{2} g_i \right),$$

$g_i \in L_p(m)$ are S-idempotents of the loop ring $Z_pL_p(m)$ for any loop $L_p(m) \in L_p$. Let $Z_2 = \{0, 1\}$ be the prime field of characteristic two and $L_n(m) \in L_n$ be the class of loops. Then all elements of the form $x = 1 + g_i \in Z_2L_n(m)$ where $g_i \in L_n(m)$ are S-pseudo zero divisors of $Z_2L_n(m)$.

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