ON QUASI LOOP RINGS

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In this paper we introduce a new algebraic structure called quasi loop ring which are loops over quasi rings. Singh P and Gurprit kaur in the year 1984 introduced the concept of quasi rings. He calls a non empty set $S$ with two binary operations $'$ and '.' satisfying the following properties as a quasi ring:

1. There exists an element $0$ in $S$ such that $a + 0 = a$ for all $a \in S$.
2. The equation $a + d = b$ has a unique solution $d$ for all $a, b \in S$.
3. For all $a, b, c$ belonging to $S$ $ab = ac$ implies $b = c$ ($a \neq 0$).
4. For all $a, b, c$ belonging to $S$, $a(b + c) = ab + ac$ and $(b + c)a = ba + ca$

Using the quasi ring we define the concept of loop quasi rings, which are nothing but loops over quasi rings analogous to loop rings, which are loops over rings. We prove for any loop $L$ and $S$ a quasi ring the loop quasi ring $SL$ is a quasi ring if and only if $SL$ has no zero divisors and $SL$ satisfies the condition for all $a, b$ in $SL$ $a + c = b$ has an unique solution $c$ in $SL$. Several interesting properties about this new algebraic structure is explored.