Prime gamma-near-rings with (σ, τ)-derivations

ABSTRACT

Let N be a 2 torsion free prime Γ-near-ring with center Z(N) and let d be a nontrivial derivation on N such that $d(N) \subseteq Z(N)$. Then we prove that N is commutative. Also we prove that if d be a nonzero (σ,τ)-derivation on N such that d(N) commutes with an element aofN then ether d is trivial or a is in Z(N). Finally if d1 be a nonzero (σ,τ)-derivation and d2 be a nonzero derivation on N such that $d1\tau = \tau\, d1$, $d1\sigma = \sigma d1$, $d2\tau = \tau\, d2$, $d2\sigma = \sigma d2$ with $d1(N)\Gamma\sigma(d2(N)) = \tau(d2(N))\Gamma d1(N)$ then N is a commutative Γ-ring.

Keyword: Gamma ring; Ring; Prime ring; (σ, τ) derivation.