

## COMMUTATIVITY OF SEMIPRIME RINGS WITH DERIVATIONS

K. SUVARNA<sup>1</sup> AND T. MADHAVI<sup>2</sup>

<sup>1</sup> Department of Mathematics,  
Sri Krishnadevaraya University,  
Anantapur 515005, Andhra Pradesh, India

<sup>2</sup> Department of Mathematics,  
Anantha Lakshmi Institute of Technology and Sciences,  
Itukalapalli, Anantapur, Andhra Pradesh, India

### Abstract

In this paper we prove that if  $d$  is a derivation on a 2-torsion free semiprime ring and  $U$  is a non zero ideal of  $R$  and  $[d(x), d(y)] + xy = 0$  for all  $x, y$  in  $U$ , then  $R$  contains a non zero central ideal. Also we prove that if  $R$  admits a non zero derivation  $d$  such that  $d(x)d(y) + d(xy) = d(y)d(x) + d(yx)$  for all  $x, y$  in  $U$ , where  $U$  is a non zero left ideal, then  $d(U)$  centralizes  $[U, U]$ . These results are extensions of the results shown by Herstien and Daif.

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Key Words and Phrases : *Semiprime ring, Derivation, Commutator and Central ideal.*

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