

ON A DIFFERENTIAL IDENTITY ON MULTILINEAR
POLYNOMIALS IN PRIME RINGS

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ABSTRACT. In recent years commuting maps are in demand amongst the authors treating additive maps in prime rings. The usual goal when treating an additive map is to describe its form if possible or to state some structural results of the ring.

Following this line of investigation this work is on a differential identity when the composition of generalized derivation and a derivation of a prime ring R is a commuting map on $f(R)$ where $f(R)$ denotes all the evaluations of the multilinear polynomials $f(x_1, \dots, x_n)$ in R .

Let R be a prime ring of characteristic different from 2, U the Utumi quotient ring of R , C the extended centroid of R , d a non-zero derivation of R , F a non-zero generalized derivation of R and $f(x_1, \dots, x_n)$ a multilinear polynomial over C . We consider the differential identity $[d(F(x)), x] = 0$ for all $x \in f(R)$ and give a characterization of the maps under some assumptions on the ring.

References

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