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Lie Rings of (anti-)symmetric Derivations of Commutative Rings

Liao, Ping-Bao; Liu, Cheng-Kai

Abstract

Let R be a 2-torsion free commutative ring with involution $*$, and δ a non-zero derivation of R . Let S be the set of symmetric elements in R and K the set of anti-symmetric elements in R . In this article, we investigate the simplicity and primeness of the Lie rings $S\delta$ and $K\delta$ when δ is a symmetric or anti-symmetric derivation.

Key words : Lie ring; Derivation; Involution; δ -simple; δ -prime