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On Lie ideals and left Jordan σ -centralizers of 2-torsion-free rings. (English summary)

Math. J. Okayama Univ. **51** (2009), 111–119.

In [Comment. Math. Univ. Carolin. **32** (1991), no. 4, 609–614; [MR1159807 \(92m:16031\)](#)], B. Zalar proved that if R is a 2-torsion-free semiprime ring, every left Jordan centralizer, i.e., every additive map $T: R \rightarrow R$ such that $T(x^2) = T(x)x$, is a homomorphism of a right R -module (which is called a left centralizer). In the paper under review, the authors study similar problems under other conditions over R . The main result of the paper states that if R is a 2-torsion-free ring, U is a square closed Lie ideal of R which contains a commutator that is not a right zero divisor, and $G: R \rightarrow R$ is a left Jordan σ -centralizer map of U into R , i.e., G is an additive map with $G(x^2) = G(x)\sigma(x)$ for every $x \in U$, for an endomorphism $\sigma: R \rightarrow R$ of R , then G is a left σ -centralizer map of U into R , i.e., $G(xy) = G(x)\sigma(y)$ for every $x, y \in U$.

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