

## JORDAN LEFT DERIVATIONS AND SOME LEFT DERIVABLE MAPS

JIANKUI LI AND JIREN ZHOU

*Abstract.* Let  $\mathcal{A}$  be an algebra and  $\mathcal{M}$  be a left  $\mathcal{A}$ -module. We say that a linear mapping  $\varphi : \mathcal{A} \rightarrow \mathcal{M}$  is a left derivable mapping at  $P$  if  $\varphi(ST) = S\varphi(T) + T\varphi(S)$  for any  $S, T \in \mathcal{A}$  with  $ST = P$ . In this paper, we show that Jordan left derivations or left derivable mappings at zero or unit on some algebras are zero under certain conditions.

*Mathematics subject classification (2000):* 47B47, 47L35.

*Keywords and phrases:* Left derivation, Jordan left derivation, left derivable mapping at zero point or unit.

### REFERENCES

- [1] M. ASHRAF AND N. REHAMN, *On Lie ideals and Jordan left derivations of prime rings*, Arch. Math., **36** (2000), 201–206.
- [2] M. ASHRAF, N. REHAMN AND S. ALI, *On Jordan left derivations of Lie ideals in prime rings*, Southeast Asian Bulletin of Mathematics, **25** (2001), 379–382.
- [3] M. BRESAR AND J. VUKMAN, *On left derivations and related mappings*, Proc. Amer. Math. Soc., **110** (1990), 7–16.
- [4] D. HADWIN AND J. LI, *Local derivations and local automorphisms*, J. Math. Anal. Appl., **290** (2004), 702–714.
- [5] D. HADWIN AND J. LI, *Local derivations and local automorphisms on some algebras*, J. Operator Theory, **60** (2008), 29–44.
- [6] K. JUN AND B. KIM, *A note on Jordan left derivations*, Bull. Korean Math. Soc., **8** (1996), 221–228.
- [7] M. LAMBROU, *On the rank of operators in reflexive algebras*, Linear Algebra Appl., **142** (1990), 211–235.
- [8] C. LAURIE AND W. LONGSTAFF, *A note on rank one operators in reflexive algebras*, Proc. Amer. Math. Soc., **89** (1983), 293–297.
- [9] W. LONGSTAFF, *Strongly reflexive lattices*, J. London Math. Soc., **11** (1975), 491–498.
- [10] F. LU AND P. LI, *Algebraic isomorphisms and Jordan derivations of  $\mathcal{J}$ -subspace lattice algebras*, Studia Math., **158** (2003), 287–301.
- [11] L. MARCOUX AND A. SOUROUR, *Conjugation-invariant subspaces and Lie ideals in non-selfadjoint operator algebras*, J. London Math. Soc., **65** (2002), 493–512.
- [12] J. VUKMAN, *Jordan left derivations on semiprime rings*, Math. J. Okayama Univ., **39** (1997), 1–6.