ON JORDAN BIDERIVATIONS OF TRIANGULAR RINGS

LEI LIU* AND MEIYUE LIU

Abstract. The aim of the paper is to give a description of Jordan biderivations for a certain class of triangular rings. It is shown that, under some mild conditions, every Jordan biderivation of the triangular rings is a biderivation. The result is then applied to some upper triangular matrix rings.

Mathematics subject classification (2020): 16W25, 16W10, 16S50.
Keywords and phrases: Triangular ring, Jordan biderivation, biderivation.

REFERENCES

[1] C. ABDIOĞLU AND T.-K. LEE, *A basic functional identity with applications to Jordan σ-biderivations*, Comm. Algebra **45** (2017), 1741–1756.

[2] D. AIAT HADJ AHMED, *On Jordan biderivations of triangular matrix rings*, J. Math. Res. Appl. **36** (2016), 162–170.

[3] D. BENKOVIČ, *Biderivations of triangular algebras*, Linear Algebra Appl. **431** (2009), 158–1602.

[4] D. BENKOVIČ, *Jordan derivations and antiderivations on triangular matrices*, Linear Algebra Appl. **397** (2005), 235–244.

[5] M. BREŠAR, *Jordan derivations revisited*, Math. Proc. Camb. Philos. Soc. **139** (2005), 411–425.

[6] M. BREŠAR, *On certain pairs of functions of semiprime rings*, Proc. Am. Math. Soc. **120** (1994), 709–713.

[7] M. BREŠAR, *Jordan derivations on semiprime rings*, Proc. Am. Math. Soc. **104** (1988), 1003–1006.

[8] M. BREŠAR, W. S. MARTINDALE, AND C. R. MIERS, *Centralizing maps in prime rings with involution*, J. Algebra **161** (1993), 342–357.

[9] M. BREŠAR, M. A. CHEBOTAR, AND W. S. MARTINDALE III, *Functional Identities*, Basel: Birkhäuser, (2006)

[10] Y. DU AND Y. WANG, *Biderivations of generalized matrix algebras*, Linear Algebra Appl. **438** (2013), 4483–4499.

[11] D. EREMITA, *Functional identities of degree 2 in triangular rings revisited*, Linear Multilinear Algebra **63** (2015), 534–553.

[12] A. FOŠNER AND W. JING, *A note on Jordan derivations of triangular rings*, Aequat. Math. **94** (2020), 277–285.

[13] I. N. HERSTEIN, *Jordan derivations of prime rings*, Proc. Am. Math. Soc. **8** (1957), 1104–1110.

[14] N. M. GHOSSEIRI, *On biderivations of upper triangular matrix ring*, Linear Algebra Appl. **438** (2013), 250–260.

[15] Y. WANG, *Biderivations of triangular rings*, Linear Multilinear Algebra **64** (2016), 1952–1959.

[16] J. ZHANG, W. YU, *Jordan derivations of triangular algberas*, Linear Algebra Appl. **419** (2006), 251–255.

[17] J. ZHANG, S. FENG, H. LI, AND R. WU, *Generalized biderivations of nest algebras*, Linear Algebra Appl. **418** (2006), 225–233.

© ELEMENT, Zagreb
Paper OaM-15-88

Operators and Matrices
www.ele-math.com
oam@ele-math.com