

RIGHT DERIVATION OF ORDERED Γ -SEMIRINGS

M. MURALI KRISHNA RAO

*Department of Mathematics
GIT, GITAM University
Visakhapatnam – 530 045, A.P., India*

e-mail: mmrapureddy@gmail.com

AND

B. VENKATESWARLU

*Department of Mathematics
GST, GITAM University
Bengaluru North – 562 163, Karnataka, India*

e-mail: bvlmaths@gmail.com

Abstract

In this paper, we introduce the concept of a right derivation of ordered Γ -semirings, we study some of the properties of right derivations of ordered Γ -semirings and we prove that if d is a non-zero right derivation of additively commutative cancellative prime ordered Γ -semiring M then M is a commutative ordered Γ -semiring.

Keywords: ordered Γ -semiring, right derivation, derivation, negatively ordered Γ -semigroup, positively ordered Γ -semigroup.

2010 Mathematics Subject Classification: 16Y60, 06F35, 08A30, 03G25.

REFERENCES

- [1] P.J. Allen, *A fundamental theorem of homomorphism for semirings*, Proc. Amer. Math. Soc. **21** (1969) 412–416. doi:10.1090/S0002-9939-1969-0237575-4
- [2] M. Bresar and J. Vukman, *On the left derivation and related mappings*, Proc. Amer. Math. Soc. **10** (1990) 7–16. doi:10.2307/2048234
- [3] T.K. Dutta and S. Kar, *On regular ternary semirings*, in: Advances in Algebra, Proceedings of the ICM Satellite Conference in Algebra and Related Topics (Ed(s)), (World Scientific, 2003) 343–355.

- [4] H. Lehmer, *A ternary analogue of abelian groups*, Amer. J. Math. **59** (1932) 329–338. doi:10.2307/2370997
- [5] W.G. Lister, *Ternary rings*, Tran. Amer. Math. Soc. **154** (1971) 37–55. doi:10.2307/1995425
- [6] K.H. Kim, *On right derivation of incline algebras*, J. Chungcheong Math. Soc. **26** (2013) 683–690. doi:10.14403/jcms.2013.26.4.683
- [7] K.H. Kim, *On generalized right derivation of incline algebras*, Gulf J. Math. **3** (2015) 36–46. gjom.org/wp-content/uploads/2015/02/v7-4-H20149.pdf
- [8] M. Murali Krishna Rao, Γ -semirings-I, Southeast Asian Bull. Math. **19** (1995) 49–54.
- [9] M. Murali Krishna Rao, Γ -semirings-II, Southeast Asian Bull. of Math. **21** (1997) 281–287.
- [10] M. Murali Krishna Rao and B. Venkateswarlu, *Regular Γ -semirings and field Γ -semirings*, Novi Sad J. Math. **45** (2015) 155–171. emis.ams.org/journals/NSJOM/Papers/45-2 /NSJOM-45-2-155-171.pdf
- [11] V. Neumann, *On regular rings*, Proc. Nat. Acad. Sci. **22** (1936) 707–713. doi:org/10.1073/pnas.22.12.707
- [12] N. Nobusawa, *On a generalization of the ring theory*, Osaka. J. Math. **1** (1964) 81–89. ir.library.osaka-u.ac.jp/dspace/bitstream/11094/12354/1/ojm_01-01-08.pdf
- [13] E.C. Posner, *Derivations in prime rings*, Proc. Amer. Math. Soc. **8** (1957) 1093–1100. doi:10.2307/2032686
- [14] M.K. Sen, *On Γ -semigroup*, in: Proc. of International Conference of algebra and its application, Decker Publication (Ed(s)), (New York, 1981) 301–308..
- [15] H.S. Vandiver, *Note on a simple type of algebra in which the cancellation law of addition does not hold*, Bull. Amer. Math. **40** (1934) 914–921. doi:10.1090/s0002-9904-1934-06003-8

Received 15 August 2016

Revised 24 October 2016