

DERIVATIONS IN SOME FINITE ENDOMORPHISM SEMIRINGS

IVAN DIMITROV TRENDAFILOV

Technical University of Sofia
Faculty of Applied Mathematics and Informatics
Department of Algebra and Geometry

e-mail: ivan_d_trendafilov@tu-sofia.bg

Abstract

The goal of this paper is to provide some basic structure information on derivations in finite semirings.

Keywords: endomorphism semiring, derivations, differential algebra.

2010 Mathematics Subject Classification: 16Y60, 12H05, 13N15.

REFERENCES

- [1] K.I. Beidar, W.S. Martindale III and A.V. Mikhalev, *Rings with generalized identities* (Marcel Dekker, 1996).
- [2] O. Ganyushkin and V. Mazorchuk, *Classical Finite Transformation Semi-groups: An Introduction* (Springer-Verlag London Limited, 2009).
doi:10.1007/978-1-84800-281-4
- [3] J. Golan, *Semirings and Their Applications* (Kluwer, Dordrecht, 1999).
- [4] I.N. Herstein, *Jordan derivations of prime rings*, *Proc. Amer. Math. Soc.* **8** (1957) 1104–1110. doi:10.1090/S0002-9939-1957-0095864-2
- [5] I.N. Herstein, *Lie and Jordan structures in simple, associative rings*, *Bull. Amer. Math. Soc.* **67** (1961) 517–531. doi:10.1090/S0002-9904-1961-10666-6
- [6] I.N. Herstein, *Noncommutative Rings* (Carus Mathematical Monographs, 1968).
- [7] I.N. Herstein, *On the Lie structure of an associative ring*, *J. Algebra* **14** (1970) 561–571. doi:10.1016/0021-8693(70)90103-1

- [8] J. Ježek, T. Kepka and M. Maròti, *The endomorphism semiring of a semi-lattice*, Semigroup Forum **78** (2009) 21–26. doi:10.1007/s00233-008-9045-9
- [9] E.R. Kolchin, *Differential Algebra and Algebraic Groups* (Academic Press, New York, London, 1973).
- [10] C. Monico, *On finite congruence-simple semirings*, J. Algebra **271** (2004) 846–854. doi:10.1016/j.algebra.2003.09.034
- [11] J.F. Ritt, *Differential Algebra* (Amer. Math. Soc. Colloq. Publ. 33, New York, 1950).
- [12] I. Trendafilov and D. Vladeva, *The endomorphism semiring of a finite chain*, Proc. Techn. Univ.-Sofia **61** (2011) 9–18. ISSN 1311-0829
- [13] I. Trendafilov and D. Vladeva, *Endomorphism semirings without zero of a finite chain*, Proc. Techn. Univ.-Sofia **61** (2011) 9–18. ISSN 1311-0829
- [14] I. Trendafilov and D. Vladeva, *On some subsemigroups of the partial transformation semigroup*, in: Appl.Math. in Eng. and Econ.–38th Int. Conf. 2012, G.Venkov (Ed(s)), (AIP Conf. Proc. 1497, 2012) 371–378. doi:10.1063/1.4766807
- [15] J. Zumbärgel, *Classification of finite congruence-simple semirings with zero*, J. Algebra Appl. **7** (2008) 363–377. doi:10.1142/S0219498808002862

Received 17 November 2012

Revised 23 November 2012