On semirings whose simple semimodules are projective

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Abstract

© 2017, Pleiades Publishing, Ltd.We study the semirings whose simple semimodules are all projective. In particular, we establish that for every semiring S this condition implies the injectivity of all simple S-semimodules and show that, in contrast to the case of rings, the projectivity of all simple semimodules in general is not a left-right symmetric property.

Keywords

projective semimodule, simple semimodule, V*-semiring, V-semiring

References

[1] Il'in S. N., "V-Semirings," Sib. Math. J., vol. 53, no. 2, 222–231 (2012).

[2] Abuhlail J. Y., Il'in S. N., Katsov Y., and Nam T. G., "On V-semirings and semirings all of whose cyclic semimodules are injective," Comm. Algebra., vol. 43, no. 11, 4632–4654 (2015).

[3] Tuganbaev A. A., Ring Theory. Arithmetic Modules and Rings [Russian], MTsNMO, Moscow 2009.

[4] Golan J. S., Semirings and Their Applications, Kluwer Acad. Publ., Dordrecht, Boston, and London 1999.

[5] Il'in S. N., "Direct sums of injective semimodules and direct products of projective semimodules over semirings," Russian Math. (Iz. VUZ), vol. 54, no. 10, 27–37 (2010).

[6] Kasch F., Modules and Rings [Russian translation], Mir, Moscow 1981.

[7] Skornyakov L. A., Elements of Lattice Theory [Russian], Nauka, Moscow 1970.