

# Toward homological characterization of semirings by e-injective semimodules

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## Abstract

© 2018 World Scientific Publishing Company In this paper, we introduce and study e-injective semimodules, in particular over additively idempotent semirings. We completely characterize semirings all of whose semimodules are e-injective, describe semirings all of whose projective semimodules are e-injective, and characterize one-sided Noetherian rings in terms of direct sums of e-injective semimodules. Also, we give complete characterizations of bounded distributive lattices, subtractive semirings, and simple semirings, all of whose cyclic (finitely generated) semimodules are e-injective.

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## Keywords

(e-)Injective semimodule, (e-)projective semimodule, Morita equivalence of semirings, simple semirings