

## IDEALS IN ORDERED $\Gamma$ -SEMIRINGS

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### Abstract

In this paper, we introduce the notion of  $k$ -ideal,  $m - k$  ideal, prime ideal, maximal ideal, filter, irreducible ideal, strongly irreducible ideal in ordered  $\Gamma$ -semirings, study the properties of ideals in ordered  $\Gamma$ -semirings and the relations between them. We characterize  $m - k$  ideals using derivation of ordered  $\Gamma$ -semirings and prove that every ideal in a mono regular ordered  $\Gamma$ -semiring is a prime ideal and field ordered  $\Gamma$ -semiring is simple.

**Keywords:** ordered  $\Gamma$ -semiring, integral ordered  $\Gamma$ -semiring, regular ordered  $\Gamma$ -semiring, mono ordered  $\Gamma$ -semiring, prime ideal, maximal ideal,  $k$ -ideal,  $m - k$  ideal, filter, irreducible ideal, strongly irreducible ideal.

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