

## APPLICATION OF $(m, n)$ - $\Gamma$ -HYPERIDEALS IN CHARACTERIZATION OF LA- $\Gamma$ -SEMIHYPERGROUPS

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### Abstract

In this paper, we study the concept of ordered  $(m, n)$ - $\Gamma$ -hyperideals in an ordered LA- $\Gamma$ -semihypergroup. We show that if  $(S, \Gamma, \circ, \leq)$  is a unitary ordered LA- $\Gamma$ -semihypergroup with zero 0 and satisfies the hypothesis that it contains no non-zero nilpotent  $(m, n)$ - $\Gamma$ -hyperideals and if  $R(L)$  is a 0-minimal right (left)  $\Gamma$ -hyperideal of  $S$ , then either  $(R \circ \Gamma \circ L) = \{0\}$  or  $(R \circ \Gamma \circ L)$  is a 0-minimal  $(m, n)$ - $\Gamma$ -hyperideal of  $S$ . Also, we prove that if  $(S, \Gamma, \circ, \leq)$  is a unitary ordered LA- $\Gamma$ -semihypergroup;  $A$  is an  $(m, n)$ - $\Gamma$ -hyperideal of  $S$  and  $B$  is an  $(m, n)$ - $\Gamma$ -hyperideal of  $A$  such that  $B$  is idempotent, then  $B$  is an  $(m, n)$ - $\Gamma$ -hyperideal of  $S$ .

**Keywords:** LA-semihypergroups,  $(m, n)$ - $\Gamma$ -hyperideals, ordered LA- $\Gamma$ -semihypergroups.

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