

## FUZZY $n$ -FOLD INTEGRAL FILTERS IN $BL$ -ALGEBRAS

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### Abstract

In this paper, we introduce the notion of fuzzy  $n$ -fold integral filter in  $BL$ -algebras and we state and prove several properties of fuzzy  $n$ -fold integral filters. Using a level subset of a fuzzy set in a  $BL$ -algebra, we give a characterization of fuzzy  $n$ -fold integral filters. Also, we prove that the homomorphic image and preimage of fuzzy  $n$ -fold integral filters are also fuzzy  $n$ -fold integral filters. Finally, we study the relationship among fuzzy  $n$ -fold obstinate filters, fuzzy  $n$ -fold integral filters and fuzzy  $n$ -fold fantastic filters

**Keywords:**  $BL$ -algebra, fuzzy  $n$ -fold obstinate filter,  $n$ -fold obstinate  $BL$ -algebra,  $n$ -fold integral  $BL$ -algebra and fuzzy  $n$ -fold integral filter.

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