

**INTUITIONISTIC FUZZY CHARACTERISTIC IDEAL  
OF A  $\Gamma$ -RING**

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**Abstract:** In this paper, we define the notion of intuitionistic fuzzy characteristic ideal (IFCI) of a  $\Gamma$ -ring which is analogue of a characteristic ideal in the ordinary ring theory and derive various new results. The correlation between the set of all automorphisms of  $\Gamma$ -ring and the corresponding automorphisms of its operator rings have been innovated. Then a one to one correlation between the set of all intuitionistic fuzzy characteristic ideals of  $\Gamma$ -ring and that of its operator ring has been constituted. This is used to obtain a similar bijection for characteristic ideals.

**Keywords and Phrases:**  $\Gamma$ -ring, Intuitionistic fuzzy characteristic ideal,  $\Gamma$ -Automorphism.

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## **1. Introduction**

The concept of a  $\Gamma$ -ring was first introduced by Nobusawa [9]. Barnes [5] weakened slightly the conditions in the definition of the  $\Gamma$ -ring in the sense of Nobusawa. Since then, many researchers have investigated various properties of this  $\Gamma$ -ring. Any ring can be regarded as a  $\Gamma$ -ring by suitably choosing  $\Gamma$ . Many fundamental results in ring theory have been extended to  $\Gamma$ -rings. R. Paul [13]