

# $(\lambda, \alpha)$ -HOMOMORPHISMS OF INTUITIONISTIC FUZZY GROUPS<sup>§</sup>

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## Abstract

In this paper, we present  $(\lambda, \alpha)$ -homomorphisms and  $(\lambda, \alpha)$ -isomorphisms between two intuitionistic fuzzy groups by means of the concept of cut-set of an intuitionistic fuzzy set. Furthermore, we discuss in detail a series of homomorphic properties of intuitionistic fuzzy groups by taking advantage of an intuitionistic  $L_*$ -nested set. Consequently, we obtain some important results.

**Keywords:** Intuitionistic fuzzy sets, Intuitionistic fuzzy groups,  $(\lambda, \alpha)$ -homomorphisms,  $(\lambda, \alpha)$ -isomorphisms,  $L_*$ -nested sets

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## 1. Introduction

The notion of intuitionistic fuzzy set was put forward by K. Atanassov [1] in 1986. After a development period of more than 20 years, their theory as well as their applications have become rather diverse. In 1994, the pioneering work in fuzzy groups was completed by R. Biswas [2]. Afterwards, there were a number of researches on L-fuzzy groups [3] and interval-valued fuzzy groups [4]. In [5], an intuitionistic fuzzy group was defined for the first time, and gave not only a series of operations and extension principles, but also their homomorphic properties as well as structural characteristics. In [6,7] the authors studied and discussed systematically various intuitionistic fuzzy subgroups, namely intuitionistic fuzzy normal subgroups, intuitionistic fuzzy projective subgroups, intuitionistic fuzzy characteristic subgroups, intuitionistic fuzzy standard subgroups, intuitionistic fuzzy fully invariant subgroups, and so on. On the basis of this, they obtained

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