A NEW VIEW OF FUZZY GAMMA RINGS

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Received 11:08:2009 : Accepted 04:01:2010

Abstract

The aim of this paper is to define a new kind of fuzzy gamma ring. So the concepts of fuzzy gamma ring, fuzzy ideal, fuzzy quotient gamma ring, and fuzzy gamma homomorphism are introduced.

Keywords: Gamma ring, Fuzzy ideal, Fuzzy quotient gamma ring, Canonical gamma homomorphism, Fuzzy binary relation.

2000 AMS Classification: 16 D 30, 16 S 99, 16 Y 99, 03 E 72.

1. Introduction

In 1965, L. A. Zadeh introduced the notion of a fuzzy subset of a set as a method for representing uncertainty. Then, in 1971, A. Rosenfeld used the notion of a fuzzy subset of a set to introduce the notion of a fuzzy subgroup of a group. Rosenfeld’s paper inspired the development of fuzzy abstract algebra. After these studies, many mathematicians have studied these subject. For more details, see [11].

In [4, 5], M. Demirci introduced the concept of smooth group by using a fuzzy binary-operation and the concept of fuzzy equality, and then this concept was applied to a new kind of fuzzy group based on a fuzzy binary operation by X. Yuan and E. S. Lee [17]. Recently H. Aktaş and N. Çağman [1] considered a type of fuzzy ring based on Yuan and Lee’s definition of a fuzzy group.

In [13], N. Nobusawa introduced the notion of a Γ-ring, which is more general than a ring. W. E. Barnes [2] weakened slightly the conditions in the definition of a Γ-ring in the sense of Nobusawa. After these two papers were published, many mathematicians obtained interesting results on Γ-rings in the sense of Barnes and Nobusawa which paralleled results in ring theory.