دومین کنفرانس بین المللی
علوم پایه و علوم مهندسی
2nd International Conference on Fundamental sciences and engineering
Tehran 2021

Hom-Functor On General Krasner Hypermodule

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Abstract

In this paper, we apply the concept of general Krasner left hypermodule and introduce (co) variant hom-functor as a categorical tools. In this regards, we prove some isomorphic theorems in general Krasner left hypermodules via (strong)weak R-homomorphisms.

Keywords: category, isomorphic theorems, left general Krasner hypermodule.

1. Introduction

The theory of hyperstructures was introduced by Marty in 1934 during the 8th Congress of the Scandinavian Mathematicians [12]. A hyperoperation on a R is nonempty set a function o : R×R→ P^* (R) where P(R) is the power set of R and (R, o) is called a hypergroupid. A hypergroupid. (R, o) is called a semihypergroup if (xoy)oz = xo(yoz), for all x, y, z ∈ R. A semihypergroup is called a hypergroup if Rox = xoR = R, for all x ∈ R. A hypergroup (R, o) is called canonical hypergroup if: (1); (R, o) is commutative; (2); (R, o) has a zero element 0_R (i.e., 0_R+x = x+0_R= x, for every x ∈ R); (3); every element of (R, o) has a uniqe inverse, (i.e., for all x ∈ R, there exists a uniqe −x ∈ R, such that 0_R ∈(x +$_R$ (−x)) ∩((−x) +$_R$ x)) ; (4); for all x, y, z ∈ R, x ∈ y +$_R$ z implies y ∈ x +$_R$ (−z) and z ∈ (−y) +$_R$ x. We can consider several definitions for a hyperring, by replacing at least one of the two operations by a hyperoperation. Regarding these points, we introduce the concept of trivial left general Krasner hypermodules and we define the category of general Krasner R-hypermodules and investigate some its properties we show that the category of trivial left general Krasner hypermodules is an abelian category. In addition, we prove that the class of all inclusion R-homomorphisms, under some conditions are general Krasner R-hypermodule.

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