ACTION ALGEBRAS

Ivan Chajda, Helmut Länger

The concepts of a (unitary) action algebra and an action function are introduced. It is shown that every unitary action algebra is isomorphic to the algebra of action functions where the binary operations are some sort of compositions of binary functions. Connections to MV-algebras and ℓ-groups are pointed out. Moreover, the notions of a strong quasistate and a full set of such quasistates are introduced and the fact that an action algebra has a full set of quasistates is characterized. (pp. 71-78)

NORMALIZATION OF VERONESE BI-TYPE IDEALS

Monica La Barbiera

We introduce the monomial ideals of Veronese bi-type in the polynomial ring over a field in two sets of variables and we study the normality of some algebras associated to them. Moreover we give a geometric description of their integral closure. (pp. 79-92)

CONVERGENCE WITH A FIXED REGULATOR IN RESIDUATED LATTICES

Lavinia Corina Ciungu

The convergence with a fixed regulator has been studied for lattice ordered groups and MV-algebras. In this paper we define the notion of convergence with a fixed regulator for residuated lattices and study some properties of this kind of convergence. We prove that a complete residuated lattice is also v-Cauchy complete. One of the main results consists of proving that in an Archimedean residuated lattice the v-limit is unique. (pp. 93-102)

ON THE DIOPHANTINE EQUATION $x^4 - q^4 = py^5$

Diana Savin

In this paper we study the Diophantine equation $x^4 - q^4 = py^5$, with the following conditions: p and q are different odd prime natural numbers, y is not divisible with p, $p \equiv 3 \pmod{20}$, $q \equiv 1 \pmod{5}$, p is a generator of the group $(U(\mathbb{Z}_q), \dot{)}$, $(x, y) = 1$, $2p$ is a 5-power residue mod q. (pp. 103-108)

SIMPLE HYPER BCK-ALGEBRAS

T. Roodbari, L. Torkzadeh, M.M. Zahedi

In this note first we define the notion of simple hyper BCK-algebras and show that there are exactly n non-isomorphism simple hyper BCK-algebra of order n. Then we show that all notions of (weak-strong) hyper BCK-ideals, positive implicative hyper BCK-ideals and implicative hyper BCK-ideals in a simple hyper BCK-algebra are equivalent. Finally we prove that every simple hyper BCK-algebra is positive implicative and (weak) implicative. (pp. 109-122)

CUBIC SPLINE SOLUTION OF OBSTACLE PROBLEM

Jalil Rashidinia, Elham R. Moghaddam

In this paper we study the application of spline for the solution of obstacle problem. We develop a numerical method of second order by using cubic spline. Convergence analysis of presented method is also given. A problem has been solved by presented method to show the efficiency of the given method. The numerical results are compared with the previous methods to justify the accurate nature of spline solution. (pp. 123-134)

COMMON FIXED POINT RESULTS FOR CONTRACTIONS OF INTEGRAL TYPE IN G -FUZZY PRODUCT METRIC SPACES

H.K. Pathak, H.S. Khan

In this paper, we discuss the topology induced by a G-fuzzy product metric and establish some common fixed point results for a γ-fuzzy contraction of integral type of self mappings on γ-complete G-fuzzy product metric spaces. As a consequence of our main result, we retrieve some results of Bari and Vetro.

REGULAR SEMIHYPERGROUPS OF LINEAR TRANSFORMATIONS

K. Savettaseranee, P. Lertwichitsilp, Y. Kemprasit

An element x of a semihypergroup $(H, \circ)$ is said to be regular if $x \in x \circ y \circ x$ for some $y \in H$, and $(H, \circ)$ is called a regular semihypergroup if every element of $(H, \circ)$ is regular. If S is a semigroup and $\emptyset \neq P \subseteq S$, let (S, P) denote the semihypergroup $(S, \circ)$ where $x \circ y = xPy$ for all $x, y \in S$. Let $M_n(F)$ be the multiplicative semigroup of all $n \times n$ matrices over a field F. It is known that for $\emptyset \neq P \subseteq M_n(F)$, the semihypergroup $(M_n(F), P)$ is regular if and only if P contains an invertible matrix in $M_n(F)$. The purpose of this paper is to extend this result to the semihypergroup $(L_F(V), P)$ where $L_F(V)$ is the semigroup, under composition, of all linear transformations of a vector space V over F and $\emptyset \neq P \subseteq L_F(V)$. It is shown that $(L_F(V), P)$ is a regular semihypergroup if and only if P contains a monomorphism and an epimorphism in $L_F(V)$. In addition, the regular elements of the semihypergroup $(L_F(V), P)$ for certain $\subseteq L_F(V)$ are determined.

THE L-FUZZY HYPERSTRUCTURES $(X, \curlywedge, \curlyvee)$ AND $(X, \curlyvee, \curlywedge)$

Yuming Feng

We construct two fuzzy hyperperations $\curlyvee$ and $\curlywedge$. The hyperstructure $(X, \curlyvee, \curlywedge)$ is likely to a hyerlattice and the hyperstructure $(X, \curlywedge, \curlyvee)$ is likely to a dual hyperlattice.

MORE TOPOLOGICAL PROPERTIES OF THE CLASSES OF HEREDITARILY ℓ_p BANACH SPACES

I. Azimi, H. Khodabakhshian

We apply a result of Schluchtermann to the class of hereditarily ℓ_p Banach spaces, the $X_{\alpha,p}$ spaces. Even the result is hold for $X_{\alpha,1}$, but it fails for $X_{\alpha,p}$ with $1 \leq p < \infty$. We show that $X_{\alpha,p}$, $1 \leq p < \infty$ fails the Dunford-Pettis property.

HETEROGENEOUS HYPERALGEBRAS

Vucić Dasić

We introduce the notion of the heterogeneous hyperalgebras which is a generalization of this notion for the heterogeneous algebras (see [1], [2]) and multialgebras (see [3], [4]).

OPTIMUM STATISTICAL TEST PROCEDURE

Rajesh Singh, Jayant Singh, Florentin Smarandache

In this paper we search for the optimum tests that minimize the sum of two error probabilities.

MORE ON $G0$-COMPACT AND $G0$-(m,n)-COMPACT SPACES

Miguel Caldas, Saeid Jafari, Raja M. Latif, Oya B. Özbakir

Balachandran [1] introduced the notion of $G0$-compactness by involving g-open sets. Quite recently, Caldas et al. in [8] and [9] investigated this class of compactness and characterized several of its properties. In this paper, we further investigate this class of compactness and obtain several more new properties. Moreover, we introduce and study the new class of $G0$-(m,n)-compact spaces.

A CONNECTION BETWEEN HYPERGROUPOIDS AND $\mathcal{L}$-FUZZY SETS OF TYPE 2

Mohsen Asghari-Larimi, V. Leoreanu-Fotea

An $\mathcal{L}$-fuzzy set of type 2 is an extension of the notion of a fuzzy set of type 2, by replacing a subset of the closed real interval $[0,1]$ by a lattice. We introduce a hyperoperation associated with an $\mathcal{L}$-fuzzy set of type 2 and analyze the properties of this new hyperoperation. Several characterization theorems are obtained, especially in connection with modular lattices.

QUASI $*$-METRICS AND FUZZY METRIC SPACES

Alireza Kamel Mirmostafaee

In this paper, we define a notion of a fuzzy metric $(X, M, *)$. Our definition enable us to define a natural topology on the space. Using Stone's metrization Theorem, we will show that the fuzzy topology on $(X, M, *)$ is metrizable. Our method will permit us to associate a system of quasi $*$-metrics to space $(X, M, *)$, which in return generate a fuzzy metric space $(X, M', *)$ in such a way that under suitable conditions $M \equiv M'$.

LATTICE STRUCTURE ON GENERATED WEAK HYPER BCK-IDEALS OF A HYPER BCK-ALGEBRA

H. Harizavi, R.A. Borzooei

In this manuscript, we introduce the notions of $\ll$-left and $\gg$-right scalar elements in a hyper BCK-algebra and we state and prove some theorems about generated weak hyper BCK-ideals of a hyper BCK-algebra. Also, we define the binary operations $\wedge$ and $\vee$ on the set of all generated weak hyper BCK-ideals of a hyper BCK-algebra and show that this set with $\wedge$ and $\vee$ forms a distributive lattice.

ON THE DISTRIBUTION OF PRODUCTS OF SPHERICAL CLASSES IN CLASSICAL SYMMETRIC SPACES OF RANK ONE

Jafar Shaffaf

The distribution of products of random matrices chosen from fixed spherical classes is determined for classical rank 1 symmetric spaces. It is observed that $n \to \infty$ limit behaves approximately as in the abelian case. A theorem on the rate of convergence to the Haar measure in the case of $SU(n)$ is also established.