HYPERGRAPHS, HYPERGROUPOIDS AND HYPERGROUPS
M.I. Ali

Abstract. One studies the hypergroupoid associated to the product of hypergraphs.

SHILOV BOUNDARY OF A KRASNER BANACH ALGEBRA $H(D)$
K. Boussaf

Abstract. Let K be an algebraically closed field, complete for a non-trivial ultrametric absolute value, and let D be an infraconnected subset of K such that the set $H(D)$ of analytic elements on D is a Banach algebra. The spectrum $Mult(H(D), \|\cdot\|_D)$ is the set of continuous multiplicative semi–norms on $H(D)$ provided with the topology of simple convergence. In this paper we characterize the Shilov boundary of $H(D)$ by using specific circular filters on D. We finally show that the Shilov boundary of $H(D)$ is equal to $Mult(H(D), \|\cdot\|_D)$ if and only if $\overset{\circ}{D} = \emptyset$. Throughout this paper, K will denote an algebraically closed field which is complete for a non-trivial ultrametric absolute value denoted by $|\cdot|$.

ON ONE PLAYER'S MAXIMUM PAYOFF IN 3–PLAYER GAMES WITH A CROSS ENTROPIC CRITERION
Rodica Brânzei

Abstract. In this paper we deal with the study of maximum gain which may be obtained by a player in noncooperative 3-player games, the payoff functions of which are defined as weighted sums of expected utilities and the cross–entropy associated with the mixed strategies for the players compatible with the apriori given probability distributions. Following the tradition of studies by S.C. Fang and H.S.J. Tsao [5]–[7], A. Ben–Tal, A. Charnes, M. Teboulle [1], [2] some theorems concerning the existence and the uniqueness of one player's optimal strategy are given. These results are used in order to obtain theorems regarding one player's maximum payoff in several conflicting attitudes that may appear in 3–player game situations according with S. Guiaşu [8], [9] generalizing some results from R. Brânzei [4] and S. Guiaşu [8].

ON DERIVATION ALGEBRA OF A REAL ALGEBRA WITHOUT NILPOTENTS OF ORDER TWO
Ilie Burdujan

Abstract. The aim of this paper is to determine a superior bound for the dimension of the algebra of all commuting derivations of a real algebra having no nilpotent of order two. This is the key-result for giving the classification of such kind of algebras by using the derivation algebra as classification criterion.

A BLOCKING SET IN $AG(3,5)$

Nicola Cassetta

Summary. A blocking set in an affine or projective space is a set of points intersecting all lines of the space but containing none. It is known (see [3], [6]) that blocking sets exist in an affine plane of order q if and only if $q \geq 4$; while in a space $AG(3,q)$ blocking sets do not exist if $q < 5$ and exist if $q > 5$: in $AG(3,5)$ the problem of the existence of blocking sets was still open. In [4], assuming that such blocking sets exist, some of their properties are investigated and it is shown that their size b is such that $54 \leq b \leq 71$.

In this paper we construct a blocking set in $AG(3,5)$ of size $b = 62$.

CONSERVATION LAWS GENERATED BY PSEUDOSYMMETRIES WITH APPLICATIONS TO HAMILTONIAN SYSTEMS

Mircea Crâşmăreanu

Abstract. In this paper we extend a result of Gerald L. Jones which gives conservation laws for ordinary differential equations. Applications to Hamiltonian systems are given.

FUZZY HYPERIDEALS IN SEMIHYPERGROUPS

B. Davvaz

Abstract. In this paper, the concept of a fuzzy right (left, two-sided) hyperideal of a semihypergroup and radical of a fuzzy hyperideal are introduced and some results are proved.

A NEW DEFINITION OF ASSOCIATED PRIME IDEALS

K. Divaani-Aazar

M. Tousi

Introduction

Throughout of this paper R denotes a commutative ring with identity and M denotes an R-module.

The theory of associated primes is a venerable tool in commutative algebra. In the theory of modules over commutative rings there are several possibilities of defining associated prime ideals. The set of associated prime ideals of M is defined as

$$\mathrm{Ass}_R(M) = \{\mathbf{p} \in \mathrm{Spec}(R) : \mathbf{p} = (0 :_R x) \text{ for some element } x \text{ of } R\}.$$

Also, the set of weakly associated prime ideals of M [2, Ch.4, §1, Ex.17] is defined as

$$\widetilde{\mathrm{Ass}}_R(M) = \{\mathbf{p} \in \mathrm{Spec}(R) : \mathbf{p} \text{ is minimal over } (0 :_R x) \\ \text{for some element } x \text{ of } R\}.$$

PACKING PROBLEM, TEORIA DEI CODICI E CRITTOGRAFIA

Giorgio Faina

Abstract. The main problem on arcs and caps, posed originally by Segre in the fifties, is to determine the values of k for which there exists a complete arc or cap in a finite n–dimensional projective space $PG(n,q)$. It is known that there exists a correspondence between some interesting classes of linear codes over $GF(q)$ and some classes of projectively equivalent complete arcs or caps (see [14]). Furthermore, some cryptosystems based on special arcs and caps have excellent properties. These facts stimulated many researches on the fundamental problem of determining the spectrum of the values of k for which there exist complete k-caps in $PG(n,q)$. The aim of this paper is to collect all results on the spectrum of values k that occur as the cardinality of a complete arc or cap in a finite projective space. Some new unpublished results are also described.

ON HYPER BCK-ALGEBRAS

Young Bae Jun
M. M. Zahedi
Xiao Long Xin
R. A. Borzoei

Abstract. We introduce the concept of a hyper BCK-algebra which is a generalization of a BCK-algebra, and investigates some related properties. We also introduce the notion of a hyper BCK-ideal and a weak hyper BCK-ideal, and give relations between hyper BCK-ideals and weak hyper BCK-ideals.

GROUPS OF HOMOMORPHISM GRADED BY G-SETS

Andrei Marcus
Ciprian Modoi

1. Introduction

Let G be a group and $R = \bigoplus_{g \in G} R_g$ a G-graded ring. If $M = \bigoplus_{g \in G} M_g$ and $N = \bigoplus_{g \in G} N_g$ are G-graded rings then E.C. Dade showed in [1] that the group $\mathrm{Hom}_R(M, N)$ has a subgroup denoted $\mathrm{HOM}_R(M, N)$ which can be endowed with a natural G-grading:

$$\mathrm{HOM}_R(M, N)_g = \{f \in \mathrm{Hom}_R(M, N) \mid f(M_h) \subseteq N_{hg} \text{ for all } h \in G\}$$
$$= \mathrm{Hom}_{R-gr}(M, N(g)),$$

where $R-\mathrm{gr}$ denotes the category of G-graded R-modules and grade preserving R-morphisms and $N(g)$ is the G graded module, called the g-suspension of N, with $N(g) = N$ and $N(g)_h = N_{hg}$ for all $h \in G$.

CURVE ALGEBRICHE SOPRA CAMPI FINITI E MAGMA

Massimo Giulietti

Sommario. The aim of this paper is to point out how the computer algebra language MAGMA can be easily employed in determining important properties of algebraic curves defined over finite fields. An algorithm which leads under certain conditions to the calculus of the genus is constructed; finally, it is applied to algebraic envelopes of complete 14-arcs in $PG(2, 19)$.

SCHUR–BAER PROPERTY IN POLYNILPOTENT GROUPS

Mohammad Reza R. Moghaddam
Mohammad M. Nasrabadi

Abstract. P. Hall in 1957, conjectured that if the marginal factor group of a given group is finite, with respect to a variety of groups $\mathcal{V}$, then its verbal subgroup is also finite. Moghaddam in 1981, constructed a bound for the verbal subgroup with respect to the variety of polynilpotent groups, when the marginal factor group is a finite p-group. In this paper we prove a similar result in a more general version.

COMMON FIXED POINTS FOR WEAKLY δ–COMPATIBLE MAPPINGS

R.A. Rashwan

M.A. Ahmed

Abstract. By using the concepts of δ-compatibility and weakly δ-compatibility between a set–valued mapping and a single–valued mapping in a complete metric space of Jungck and Rhoades [6], we establish some common fixed point theorems for four mappings on complete and compact metric spaces. These results also improve and generalize some known results (see [3], [11]).

FUZZY RINGS OF QUOTIENTS

I. Tofan

A.C. Volf

Abstract. This paper introduces the notion of fuzzy multiplicative subset and gives a sample of the results that can be obtained by using it. In particular, the connection with the fuzzy prime ideals is established. We construct the ring of quotients with respect to a fuzzy multiplicative subset and give a universality property characterizing it, as in the classical case.