

GENERALIZED ACTION OF A HYPERGROUP ON A SET

Ali Madanshekaf , Ali Reza Ashrafi

It is a well-known result in group theory that every action of a group G on a set X corresponds to a homomorphism from G into S_X , the symmetric group on X . In this paper we define a generalized action of a hypergroup G on a set X and will prove similar results about that. Also, we get the order of some hypergroups which is related to generalized permutations.

ESTENSIONI E RESTRIZIONI IN PARTICOLARI FAMIGLIE DI GRAFI REGOLARI ORIENTATI

Umberto Bartocci, Antonella Girardi

In this paper one studies the possibility of extension and restriction, from the edges point of view, of some families of directed graphs which have special regularity properties, either in both sets of the inputs and of the outputs, or just only in that of the inputs (outputs).

THE NON-EXISTENCE OF BLOCKING SETS IN $PG(3,4)$

Nicola Cassetta

A blocking set in an affine or projective spaces is a set of points intersecting all lines of the space but containing none. In a projective plane of order q blocking sets exist if and only if $q \geq 3$ (see [5]); for $PG(3, q)$ it is known that blocking sets do not exist if $q < 4$ and exist if $q > 4$: (see [2], [4], [6]): so the problem of existence of blocking sets in $PG(3, 4)$ was still open. In this paper we explain the results of a search for blocking sets in $PG(3, 4)$, done by means of a computer program and with the aid of the theoretic results of [1] and [3]. We found no blocking set, so, as the algorithm makes an exhaustive search, we can claim the non-existence of blocking sets in $PG(3, 4)$. In §§1,2 we describe the searching algorithm and give a proof of its correctness; in §3 we describe how the program and the theoretic results have been employed for getting our results.

ON THE BOAS-BELLMAN GENERALIZATION OF BESSEL'S INEQUALITY IN INNER PRODUCT SPACES

S.S. Dragomir, B. Mond

In this paper we point out a generalization of an inequality due to Boas and Bellman which generalizes, in turn, the well-known Bessel inequality in inner product spaces. Some related results are also pointed out. These results complement, in a sense, some results of Chapter XV of the recent book of Mitrinović, Pečarić and Fink.

RELAZIONE PERIMETRO-AREA:

raffronto tra frattale sottile – frattale grosso e relative implicazioni

Rosanna Iembo

In river basins the study of the perimeter-area relation demonstrates the impossibility of finding a unique value, at different scales, for the fractals dimension of the basin border in that the segments of the border are statistically self-affine. Therefore the use of multifractals is necessary.

SULLA COMPLETEZZA DI FRATTALI

Rosanna Iembo

This work is a further illustration of the importance of completeness and the contraction mapping principle in determining fractals. Particular attention has been paid to the Cantor set as an attractor.

SULLA CONNESSIONE DI INSIEMI FRATTALI

Rosanna Iembo

This work treats topology and fractal geometry together, with the scope of showing that fractal geometry is an extension of classical geometry rather than an incompatible alternative. Special attention has been given to the connectedness of fractal sets.

ABSOLUTE VALUED ALGEBRAS CONTAINING A CENTRAL ELEMENT

Mohamed Lamei El-Mallah

In Theorem 3.6 of [2] we have shown that if A is an absolute valued real algebra (not necessarily associative or finite dimensional) containing a central idempotent, then A is necessarily an inner product space. In this paper we generalize this result by using a weaker condition, that is, the existence of a central element $a \in A$ satisfying the equality $a(aa^2) = a^2a^2$.

SINGULARITÉS ET ALGÈBRES SYMÉTRIQUES

Artibano Micali, Ires Dias

The main result of this paper is a characterization of singular points of a hypersurface via symmetric algebra. Le résultat central de ce papier est de donner une caractérisation des singularités d'une hypersurface au moyen de l'algèbre symétrique. Dans ce contexte, la détermination du nilradical de l'algèbre symétrique joue un rôle fondamental.

THE CONDITION OF ISOMORPHISM OF A CLASS OF HYPERFIELDS WITH QUOTIENT HYPERFIELDS

Pinotsis George

There are hyperfields in which the sum $x + y$ of any two elements contains these two elements x, y . These hyperfields K are derived from any element $\neq 0$. That means $K = x - x$ for every $x \in K \cdot x \neq 0$. If the previous hyperfield is isomorphic to a quotient hyperfield F/G , then we will have $G - G = F$. So we face the following problem: *Are there fields F and subgroups G of their multiplicative group F^* for which the relation $F = G - G$ is valid?*

STABILITY OF MULTIPLICATIVE DYNAMICAL SYSTEMS

Marian Podhorodynski

A method of construction of lower measure for Markov operators given by transition probability function is showed and it is applied to proving of asymptotical stability of Markov operators describing dynamical systems with multiplicative perturbations.

A COMMON FIXED POINT THEOREM IN UNIFORMLY CONVEX BANACH SPACES

R.A. Rashwan

In this paper, we present a common fixed point theorem for compatible mappings of type (A), which extends the result of Imdad, Khan and Sessa. Also suitable example is given.

SOME RESULTS OF SYSTEMS $S_\lambda(k-1, k, v)$ HAVING TRANSVERSALS

Rosaria Romano

In this paper we study some properties of systems $S_\lambda(k-1, k, v)$ having transversals.

ON THE MEANING OF DIMENSION IN A GEOMETRIC STRUCTURE

Maria Scafati, Giuseppe Tallini

In this paper, we deal with different notions of dimension which we may define in a geometric space.

STUDIO DI INSIEMI CLASSICI IN UNO SPAZIO SEMILINEARE

Maria Scafati Tallini

In a semilinear space, classical subsets like cliques, anticliques, blocking sets and ovoids are defined and studied.

COMPLETE MULTIPLICATIVITY AND COMPLETE ADDITIVITY IN MÖBIUS CATEGORIES

Emil-Daniel Schwab

In this paper we prove characterizations of Lambek–Carlitz type for the completely multiplicative and the completely additive incidence functions in Möbius categories. In the case of a binomial–triangular category, we give a characterization of $c\ell(x)$ as a completely additive incidence function ($\ell(\alpha)$ is the length of the morphism α). Finally we establish characterizations of Lambek–Carlitz type for \mathcal{C} –binomial multiplicative and \mathcal{C} –binomial additive formal power series via a full Möbius category of binomial type.

CONSTRUCTIVE METHOD FOR SOLVING NONLINEAR SINGULARLY PERTURBED SYSTEMS OF INTEGRODIFFERENTIAL EQUATION

Angela Slavova

In this paper we study singularly perturbed systems of integro differential equations in the case when the matrix at the derivative is singular. The question of existence and construction of periodic solutions are investigated, using iterative processes convergent in general (Cauchy’s) sense. For the analysis of these algorithms the apparatus of Lyapunov’s finite majorizing equations is used.

**GENERIC 4-PARAMETER FAMILY OF PLANAR VECTOR FIELDS.
GLOBAL BIFURCATIONS OF AN IMPROPER SADDLE-NODE SINGULARITY
AS A PERTURBED HAMILTONIAN SYSTEM**

Myrna Wallace, Hernan Burgos, Jorge Billeke

In this paper we study some global bifurcations of the three-parameter family of planar vector fields:

$$X_\lambda(x, y) = y \frac{\partial}{\partial x} + (x^4 + \mu_2 x^2 + \mu_1 x + y(x + v)) \frac{\partial}{\partial y}, \lambda = (\mu_1, \mu_2, v) \in \mathbb{R}^3$$

which is a subfamily of a versal unfolding of an improper saddle-node type singularity. By making a rescaling we consider the family X_λ as a perturbation of the Hamiltonian system

$$X_H(x, y) = y \frac{\partial}{\partial x} + (x^4 + \mu_2 x^2 + \mu_1 x) \frac{\partial}{\partial y}.$$

Local bifurcations of the family X_λ had been studied in [6].