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ABSTRACTS

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Mathematics

ON M-CONTINUOUS MULTIFUNCTIONS

Valeriu POPA and Takashi NOIRI

Abstract. The authors define a multifunction $F : X \rightarrow Y$ to be m -continuous if for each point $x \in X$ and any open sets G_1, G_2 of Y such that $F(x) \subset G_1$ and $F(x) \cap G_2 \neq \emptyset$, there exists an m -open set U of X containing x such that $F(U) \subset C1(G_1)$ and $F(u) \cap C1(G_2) \neq \emptyset$ for every $u \in U$. The functions enable us to unify continuity, α -continuity, quasi-continuity, precontinuity, and β -continuity for multifunctions. They obtain some characterizations and several properties concerning m -continuous multifunctions.

Keywords: minimal structure, m -open, m -continuous, multifunction.

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TWO THEOREMS ON COSYMPLECTIC HYPERSURFACES OF SIX-DIMENSIONAL KÄHLERIAN SUBMANIFOLD OF CAYLEY ALGEBRA

Mihail BANARU

Abstract – It is proved that the type number of an arbitrary cosymplectic hypersurface of a six-dimensional Kählerian submanifold of Cayley algebra is at most one.

Keywords: cosymplectic manifold, Kählerian manifold, type number.

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MULTIFUNCTIONS WITH VALUES IN GENERALIZED UNIFORM SPACES

Titu BÂNZARU

Abstract – We consider multifunctions with values in generalized uniform spaces, where generalized uniform structure is expressed in terms of convergings.

For nets of such multifunctions, relationships between the almost uniform convergence and uniform one are established. Also, some characterizations of the continuity are given.

Keywords: uniform spaces, uniform structures, nets of multifunctions.

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THE SUBMEASURABILITY OF FUNCTIONS WITH VALUES IN PRODUCT OF PROBABILISTIC METRIC STRUCTURE

Octavian LIPOVAN

Abstract – In the [7] the author defines the submeasurability for the probabilistic metric structures-valued functions and studied some properties of this concept in the case of mappings valued in product of probabilistic metric structures.

Keywords: submeasurability of probabilistic metric structures

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STRUCTURE OF ADDITIVE A-CATEGORIES

Dan DĂIANU

Abstract. In this paper we present some classes of additive a-categories and we prove the constructivity of an a-category of modules over an a-category. Also we commence the study of concretizable a-categories (a-c-categories); we show that any a-c-category (C, C') one insomorphically immerses in the canonical a-category over C' ; we give also some results on the structure of simple and artinian a-c-categories.

Keywords:

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SUR LE CALCULE AUTOMATIQUE DE QUELQUES INTEGRALES TRIGONOMETRIQUES (II)

Constantin MILICI

Résumé. Dans ce présent travail nous proposons de préciser le calcule automatique de quelques coefficients α des sommes trigonométriques plus générales $A_{p,q}$ exprimées par l'intégrale:
 $x \times x .$

Keywords:

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ABOUT THE PSEUDOHOMOGENEOUS DISTRIBUTION

Mihai NEAGU and Dan POPESCU

Abstract –.In the present paper we have introduced the notion of pseudohomogeneous distribution.

Keywords: pseudohomogeneous distribution.

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GENERAL CONVEXITY FOR FUNCTIONS ASSOCIATED TO GENERAL CONVEXITY FOR SETS

Gabriela CRISTESCU and Liana LUPȘA

Abstract. The purpose of this paper is to define a general notion of convexity for functions associated to a given notion of convexity for sets, without involving the notion of cone. Various couples of convexities for sets and for functions are presented in more frameworks.

Keywords:

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AN INTEGRAL REPRESENTATION OF THE OPERATORS WHICH FORM A FELLER SEMIGROUP

Emil POPESCU

Abstract.

Keywords:

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Physics

SHADOW MOTION WITH SURPRISES

Bernhard ROTHENSTEIN, Albert ROTHENSTEIN and Floricica BARVINSCHI

Abstract. . A source of light moving parallel to the ground, with constant velocity $u=\beta c$ and at a height H , approaches a vertical opaque wall of height $h<H$: ($m=H/h$). The wall casts a shadow on the ground limited by a point $Q(x,0)$ and the wall it-self $Q_w(0,0)$, if $\beta < \frac{m-1}{m}$. If

$\beta > \frac{m-1}{m}$, all the points between the wall and a point $Q_1(x_1,0)$ are in shadow, all the points between $Q_1(x_1,0)$ and $Q_2(x_2, 0)$; ($x_2>x_1$) are illuminated, whereas all the points characterized by $x>x_2$ are in shadow too. Point Q moves in accordance with intuition to the left approaching the wall. Point Q_1 moves to the left, whereas point Q_2 moves to the right. Points Q_1 and Q_2 could move with velocities exceeding the velocity of light, as not carrying energy or information in the direction of their motion. The light is switched off at the instant the source is directly over the wall.

Keywords: light moving, shadow

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THE CRYSTALLIZATION KINETICS OF $\text{Fe}_{65}\text{Gd}_{10}\text{Cr}_5\text{B}_{20}$ AMORPHOUS ALLOYS

Ioan ZAHARIE and Marin LIȚĂ

Abstract. In the present paper the non-isothermal crystallization kinetics of $\text{Fe}_{65}\text{Gd}_{10}\text{Cr}_5\text{B}_{20}$ amorphous alloys is investigated by differential thermal analysis (DTA). The crystallization of $\text{Fe}_{65}\text{Gd}_{10}\text{Cr}_5\text{B}_{20}$ amorphous alloys has been realized through three processes characterized by the activation energies $\varepsilon_1=2.7\pm 0.1\text{eV}$, $\varepsilon_2=3.7\pm 0.3\text{eV}$, $\varepsilon_3=3.0\text{eV}$. By X-ray diffraction (XRD) we established the crystalline phases which appeared in the non-isothermal crystallization process: FeB, Fe_2B , Fe_3B , CrB_4 , Cr_5B_3 , Gd_2B_5 .

Keywords: non-isothermal, crystallization, activation energy

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THEORETICAL AND EXPERIMENTAL STUDY ON THE FLOWS IN THE PRESENCE OF AN AIRFOIL

Adriana Sida MANEA

Abstract. This paper presents theoretical and experimental results obtained in the flow over an S airfoil in the directing apparatus of turbine – pump reversible hydraulic machines.

Keywords: airfoil, turbine, Reynold number

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UNCERTAINTY THROUGH THE COHERENT STATES FOR THE BDS-HAMILTONIAN

Dušan POPOV

Abstract. In the paper we have examined the uncertainty relations both in the traditional formulation (the Heisenberg relations) and in a new point of view (the entropic uncertainty relation) related to the BDS-Hamiltonian. This is a X-deformed non-Hermitian Hamiltonian for the harmonic oscillator, which was introduced by Beckers, Debergh and Szafraniec. With the BDS-coherent states we calculate the uncertainty relations and we obtain the lower bound in accordance with the general theorem formulated by Bialynicki-Birula and Mycielski.

Keywords: X-deformed harmonic oscillator, BDS-coherent states

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RADIO FREQUENCY MAGNETIC PROPERTIES OF Ni-FERRITE

L.HRIANCA, M.CRISTEA, A.ZAMFIR, M.GANGĂL and M.ȘTEFĂNESCU

Abstract. The dependence of complex magnetic susceptibility on frequency in the range of (10-50) MHz was performed for pulverous Ni-ferrite (NiFe_2O_4) with the grain sizes of 60-350 μm , of high purity, using a short-circuited transmission line and the Q-meter, at room temperature. It can be noticed that its δ_m versus frequency does not show a maximum in the accessible range of frequency but it shows the tendency to a maximum at a frequency value over 50 MHz. The real component χ of magnetic susceptibility presents a maximum value at about 42 MHz.

Keywords: Ni-ferrite, Q-meter

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