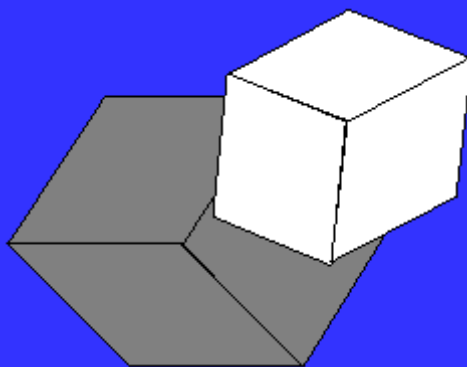


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Papers Abstracts



FORUM

ON OD-CHARACTERIZABILITY OF A CERTAIN ALTERNATING AND SYMMETRIC GROUP

A. Mahmiani, M.R. Darafsheh

In this paper we will show that if G is a finite group with the same order and degree pattern as the alternating group on 27 letters, then G is isomorphic to A_{27} . Furthermore we will show that there are three non-isomorphic finite groups with the same order and degree pattern as the symmetric group on 27 letters. (pp. 7-14)

SOME UNIQUENESS RESULTS ON MEROMORPHIC FUNCTIONS SHARING TWO SETS

Abhijit Banerjee, Pranab Bhattacharjee

Using the notion of weighted sharing, we prove some uniqueness theorems of meromorphic functions that share two sets. The results in this paper improve and supplement some recent ones of the first author and consequently provide a better answer to the famous question of Gross than that was given previously. (pp. 15-32)

A NOTE ON P -REGULAR SEMIRINGS

M.K. Dubey

The notion of P -regular semiring is introduced and characterization of the same has been given. We also study the representation of the elements in terms of quasi-ideals of weak P -regular semirings relative to the right k -ideal P . (pp.33-36)

SOME CLASSES OF GENERALIZED MINMAX POLYNOMIALS

H.M. Srivastava, Gospava B. Djordjević

The so-called MinMax numbers $\{M_n\}$ and their subsidiary numbers $\{N_n\}$ for the Pell numbers $\{P_n\}$ were studied by (for example) A.F. Horadam [3]. These MinMax numbers $\{M_n\}$ are positive integers which are the minimal and maximal representations by means of the Pell numbers. Analogous results for the MinMax numbers $\{D_n\}$ and their subsidiary numbers $\{R_n\}$, and for the modified Pell numbers $\{q_n\}$, are obtained in [3], $Q_n := 2q_n$ being the Pell-Lucas numbers. A.F. Horadam [4], on the other hand, expanded this MinMax number system to the algebraic polynomials $\{M_n(x)\}$, $\{N_n(x)\}$, $\{D_n(x)\}$ and $\{R_n(x)\}$. Our aim in this paper is to investigate results, which are similar to those in [4], but which hold true instead for the following generalized sequences of polynomials:

$$\{P_{n,m}(x)\} \quad \text{and} \quad \{Q_{n,m}(x)\} \quad (m \in \mathbb{N}; n \in \mathbb{N} \cup \{0\}),$$

\mathbb{N} being the set of positive integers. (pp. 37-48)

ON γ -s-URYSOHN CLOSED AND γ -s-REGULAR CLOSED SPACES Sabir Hussain, Ennis Rosas

In this paper, we introduced and studied γ -s-Urysohn spaces and γ -s-regular closed spaces. Several characterizations and properties of these classes of spaces have been obtained. (pp. 49-56)

(0, 2; 0)-INTERPOLATION ON THE UNIT CIRCLE Swarnima Bahadur

In this paper, we study the explicit representation and convergence of Pál-type weighted (0, 2; 0)-interpolation on two pairwise disjoint sets of nodes on the unit circle, which are obtained by projecting vertically the zeros of $(1 - x^2)P_n(x)$ and $P'_n(x)$ respectively on the unit circle, where $P_n(x)$ stands for n^{th} Legendre polynomial. (pp. 57-66)

ON LAPLACE TRANSFORMS OF GENERALIZED WHITTAKER FUNCTION OF MULTI-VARIABLES $M_{\lambda, \mu_1 \dots \mu_k}(x_1, \dots, x_k)$ M. Kamarujjama, Waseem A. Khan

In this paper, a Laplace transform of generalized Whittaker function is derived which is used to obtain further some partly bilateral and partly unilateral generating function and series expansion. Some special cases are also discussed. (pp. 67-72)

FEKETE-SZEGÖ PROBLEM FOR CONCAVE UNIVALENT FUNCTIONS DEFINED BY SĂLĂŢEANU OPERATOR Alawiah Ibrahim, Maslina Darus, Sever S. Dragomir

Let $C_0(\alpha)$ denote the class of concave univalent functions defined in the open unit disk U . In this paper, we investigate the sharp upper bounds of Fekete-Szegő functional with real and complex parameter λ for the class of concave univalent functions defined by SălăŢeanu differential operator. (pp. 73-86)

r -WEAK cb SPACES D. Bhattacharya, L. Dey

The purpose of the paper is to introduce the notion of r -weak cb spaces as a generalization of weak cb spaces. The r -weak cb property of a space is defined with the help of a stronger form of normal upper semi continuous functions viz. strongly normal upper semi continuous (s-nusc) function. A stronger form of regular closed subsets called strongly regular (s-regular) closed subsets turns out to be the natural tool for defining the new function. The r -weak cb spaces are characterized by a increasing cover of s-regular open (i.e. complement of s-regular closed) subsets and a decreasing sequence of s-regular closed subsets. Some of the properties of the newly introduced spaces and its interrelationship with other spaces are investigated. (pp. 87-102)

MORE PROPERTIES ON FLEXIBLE GRADED MODULES

Fida Moh'D, Mashhoor Refai

In this paper, we study the structure of flexible graded modules over various types of graded rings such as first strong and augmented graded rings. Also, we introduce the notions of flexibly simple and flexibly Noetherian modules, and investigate various properties of such modules. (pp. 103-114)

ON $(N(k), \xi)$ -SEMI-RIEMANNIAN 3-MANIFOLDS

D.G. Prakasha, H.G. Nagaraja, G. Somashekara

The object of the present paper is to study 3-dimensional $(N(k), \xi)$ -semi-Riemannian manifolds. We study $(N(k), \xi)$ -semi-Riemannian 3-manifolds which are Ricci-semi-symmetric, locally ϕ -symmetric and have η -parallel Ricci tensor.

(pp. 115-124)

A NEW SIGNING ALGORITHM BASED ON ELLIPTIC CURVE DISCRETE LOGARITHMS AND QUADRATIC RESIDUE PROBLEMS

Nedal Tahat, Emad E. Abdallah

In this paper we propose a new digital signature algorithm for authenticity and integrity of a digital message. The core idea behind our approach is concentrated on using two hard problems in the signing process. The elliptic curve discrete logarithm and quadratic residue are engaged in a sophisticated manner to do the signing. The new proposed scheme provides higher level of security than other techniques that use a single hard problem. Clearly, Cybercriminals have to solve the two underlying hard problems simultaneously to destroy embedded signature. Extensive experimental results on several signed documents are performed to demonstrate the robustness of the proposed scheme against the most common attacks on digital signatures. Moreover, the computational complexity of the new scheme requires reasonable number of operations in both signing and verifying algorithms. (pp. 125-132)

ECCENTRICITY, SPACE BENDING, DIMENSION

Marian Nitu, Florentin Smarandache, Selariu Mircea

The main goal of this paper is to present new transformations, previously non-existent in traditional mathematics, that we call centric mathematics (CM) but that became possible due to the new born eccentric mathematics, and, implicitly, to the supermathematics (SM).

As shown in this work, the new geometric transformations, namely conversion or transfiguration, wipe the boundaries between discrete and continuous geometric forms, showing that the first ones are also continuous, being just apparently discontinuous. (pp. 133-142)

STRONGLY DUO AND DUO RIGHT S -ACTS

Mohammad Roueentan, Majid Ershad

New kinds of acts, namely strongly duo and duo acts over a monoid are introduced and investigated. This leads to the study of the relation between these kinds of acts and other classes of acts, such as injective, projective and multiplication. It is shown that a projective act is duo if and only if it is a multiplication act. In addition if S is commutative, then a cyclic S -act is strongly duo if and only if it is cyclic quasi-injective. (pp. 143-154)

ON AUTOMATIC BOUNDEDNESS OF LINEAR OPERATORS ON CONVEX BORNOLOGICAL SPACES

Abdelaziz Tajmouati

In this paper, using the notion of separating space of a linear operator defined on a bornological vector space introduced in [5], we give some useful criteria to study the automatic boundedness of operators. In particular, we give necessary and sufficient conditions in order that operators should be bounded (Theorem 3.1 and Theorem 4.1). (pp. 155-164)

STABILITY OF NONLINEAR NABLA FRACTIONAL DIFFERENCE EQUATIONS USING FIXED POINT THEOREMS

J. Jagan Mohan, N. Shobanadevi, G.V.S.R. Deekshitulu

Difference equations are often used to analyze sampled data systems, in which stability problems are considered to be important. This is evident from a large number of research papers dedicated to it. However, stability results for nonlinear nabla fractional difference equations are not yet reported. The present article discusses stability of nonlinear nabla fractional difference equations of Riemann–Liouville and Caputo type, using fixed point theory. (pp. 165-184)

EXP-FUNCTION METHOD USING MODIFIED RIEMANN–LIOUVILLE DERIVATIVE FOR SINGULARLY PERTURBED BOUSSINESQ EQUATIONS OF FRACTIONAL-ORDER

Qazi Mahmood Ul Hassan, Syed Tauseef Mohyud-Din

This paper witnesses the combination of an efficient transformation and Exp-function method to construct generalized solitary wave solutions of the nonlinear singularly perturbed sixth-order Boussinesq equations of fractional-order. Computational work and subsequent numerical results re-confirm the efficiency of proposed algorithm. It is observed that suggested scheme is highly reliable and may be extended to other nonlinear differential equations of fractional order.

(pp. 185-192)

COMMON FIXED POINT FOR SELF AND NONSELF-MAPS THROUGH AN IMPLICIT RELATION

T. Phaneendra, D. Surekha

Common fixed point theorems for three self and nonself-maps have been proved through the notions of property E.A., orbital completeness and weak compatibility under an implicit relation. The results of Singh and Mishra (1997), Singh and Asish Kumar (2006), Khan and Dolmo (2007) and Imdad and Ali (2008) are then particular cases. (pp. 193-202)

A CHARACTERIZATION OF PROJECTIVE SPECIAL LINEAR GROUP $L_3(5)$ BY nse

Shitian Liu

Let G be a group and $\omega(G)$ be the set of element orders of G . Let $k \in \omega(G)$ and s_k be the number of elements of order k in G . Let $nse(G) = \{s_k | k \in \omega(G)\}$. In Khatami et al. and Liu's works, the authors proved that the groups $L_3(2)$ and $L_3(4)$ are unique determined by nse . In this paper, we prove that if G is a group such that $nse(G) = nse(L_3(5))$, then $G \cong L_3(5)$. (pp. 202-212)

NEW INEQUALITIES OF HERMITE-HADAMARD TYPE FOR FUNCTIONS WHOSE FIRST DERIVATIVES ABSOLUTE VALUES ARE s -CONVEX

Feixiang Chen, Yuming Feng

In this paper, some new inequalities of the left-hand side of Hermite-Hadamard-type are obtained for functions whose first derivatives absolute values are s -convex. (pp. 213-222)

ON THOMPSON'S CONJECTURE FOR $\text{Aut}(J_2)$ AND $\text{Aut}(McL)$

Yanheng Chen, Yuming Feng, Guiyun Chen

Let G be a finite group and $N(G)$ be the set of conjugacy class sizes of G . In 1980s J. G. Thompson conjectured: If G is a finite group with trivial center and S is a non-abelian finite simple group satisfying that $N(G) = N(S)$, then $G \cong S$. Here, we generalize the conjecture to the automorphism groups of J_2 and McL . As a corollary this result extends the conjecture to all almost sporadic simple groups. (pp. 223-234)

ON SOME GROWTH PROPERTIES OF DIFFERENTIAL POLYNOMIALS IN THE LIGHT OF RELATIVE ORDER

Sanjib Kumar Datta, Tanmay Biswas, M.D. Azizul Hoque

In the paper we establish some newly developed results based on the growth properties of relative order (relative lower order), relative type (relative lower type) and relative weak type of differential polynomials generated by entire and meromorphic functions. (pp. 235-246)

JENSEN TYPE WEIGHTED INEQUALITIES FOR FUNCTIONS OF SELFADJOINT AND UNITARY OPERATORS

S.S. Dragomir

On making use of the spectral representations in terms of the Riemann-Stieltjes integral for the selfadjoint and unitary operators in Hilbert spaces we establish here some weighted inequalities of Jensen's type for convex, square-convex and Arg-square-convex functions. Some applications for simple functions of operators that belong to those classes are also provided. (pp. 247-264)

φ J-MULTIPLIERS AND φ J-MULTIPLIERS QUADRATIC ON JORDAN BANACH ALGEBRAS

Abdelaziz Tajmouati

In this work, we define the notion of φ J-multipliers on Jordan-Banach algebras without order and investigate some of their properties. We show that a φ J-multiplier satisfies the condition $T[U_x(y)] = U_{\varphi(x)}[T(y)]$. This suggests that we define a new concept which is the φ J-multiplier quadratic. We show several algebraic or topological properties for both concepts. In particular, we extend some known results for φ -multipliers to φ J-multipliers and φ J-multipliers quadratic. (pp. 265-276)

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A NOTE ON BOOLEAN SUBSETS OF ORTHOMODULAR POSETS

Dietmar Dorninger, Helmut Länger

Modelling quantum systems by orthomodular posets $\mathcal{P} = (P, \leq', 0, 1)$ gives rise to the question, when a finite subset A of P lies within a Boolean subalgebra of \mathcal{P} , in which case A is called Boolean. Boolean subsets A specify the physical subsystem represented by A to be classical. We give a characterization of a subset of P to be Boolean by only taking into account terms of elements of this subset and in such a way that an inductive algorithm can be derived. (pp. 277-282)

SOME DERIVATIONS ON THE BOUNDS FOR THE ZEROS OF ENTIRE FUNCTIONS BASED ON SLOWLY CHANGING FUNCTIONS

Sanjib Kumar Datta, Dilip Chandra Pramanik

A single valued function of one complex variable which is analytic in the finite complex plane is called an entire function. The purpose of this paper is to establish the bounds for the moduli of zeros of entire functions in the light of slowly changing functions. (pp. 283-300)

SOFT INTERSECTION h -IDEALS OF HEMIRINGS AND ITS APPLICATIONS

Xueling Ma, Jianming Zhan

In this paper, we introduce a new kind of soft hemirings called soft intersection hemirings and obtain some related properties. Some basic operations are also investigated. Finally, we describe some characterizations of h -hemiregular hemirings by means of SI - h -ideals. (pp. 301-308)

CHARACTERIZATIONS OF REGULAR ABEL-GRASSMANN'S GROUPOIDS BY THE PROPERTIES OF THEIR $(\in, \in \vee q_k)$ -FUZZY IDEALS

Xueling Ma, Jianming Zhan, Madad Khan, Tariq Aziz

In this paper, we characterize some properties of regular Abel-Grassmann's groupoid in terms of its $(\in, \in \vee q_k)$ -fuzzy ideals. (pp. 309-324)

SECRET KEY DISTRIBUTION TECHNIQUE USING THEORY OF NUMBERS

S. Srinivasan, P. Muralikrishna, N. Chandramowliswaran

A group key distribution protocol can enable members of a group to share a secret group key and use it for secret communications. In this article we review the number of share holders require to reconstruct the secret grouped among them. The confidentiality of our proposed protocol is unconditionally secure.

(pp. 325-328)

SOME CHARACTERIZATIONS OF INTRA-REGULAR ABEL GRASSMANN'S GROUPOIDS

Xueling Ma, Jianming Zhan, Madad Khan, Tariq Aziz

In this paper, we give some characterizations of a new non-associative structure, namely intra-regular AG-groupoids by the properties of its $(\in_\gamma, \in_\gamma \vee q_\delta)$ -fuzzy subset, $(\in_\gamma, \in_\gamma \vee q_\delta)$ -fuzzy left (right) ideals and $(\in_\gamma, \in_\gamma \vee q_\delta)$ -fuzzy bi-ideals.

(pp. 329-346)

SOME DOUBLE LACUNARY SEQUENCE SPACES

Kuldip Raj, Sunil K. Sharma, Seema Jamwal

The purpose of this paper is to introduce some double lacunary sequence spaces defined by a sequence of Orlicz functions. We also make an effort to study some topological properties and inclusion relations between these sequence spaces.

(pp. 347-358)

A NEW APPROACH TO A CERTAIN GENERALIZED INTEGRAL TRANSFORM FOR CERTAIN SPACE OF BOEHMIANS

S.K.Q. Al-Omari

In this article, we introduce a generalization of Fourier and Hartely transforms. The transform we have obtained has been investigated on certain space of distributions. Two spaces of Boehmians are also established. The extended transform is then obtained and is well-defined, linear, one-to-one and onto mapping. More properties are also illustrated. (pp. 359-368)

ON SOLITARY WAVE SOLUTIONS OF NONLINEAR TIME-FRACTIONAL FORNBERG-WHITHAM EQUATION

Qazi Mahmood Ul Hassan, Syed Tauseef Mohyud-Din

This paper witnesses the combination of an efficient transformation and Exp-function method to construct generalized solitary wave solutions of the nonlinear time-fractional Fornberg-Whitham equation. Computational work and subsequent numerical results re-confirm the efficiency of proposed algorithm. It is observed that suggested scheme is highly reliable and may be extended to other nonlinear differential equations of fractional order. (pp. 369-378)

GLOBAL EXPONENTIAL STABILITY OF IMPULSIVE HYBRID DYNAMICAL SYSTEMS WITH ANY TIME DELAY

Xingjie Wu, Yang Liu, Zongmin Qiao

This present paper addresses global exponential stability for a class of more general linear impulsive hybrid dynamical systems with any time delay. Combined Lyapunov function methods with the Razumikhin technique, several criteria on global exponential stability are derived, which are substantially extension and generalization of the corresponding results in recent literature. Subsequently, two application examples and its numerical simulations demonstrate that the obtained stability criteria are practical and effective. (pp. 379-392)

FROM NEWTON TO KEPLER.

One simple derivation of Kepler's laws from Newton's ones.

František Mošna

There is plenty of ways how to deduce Kepler's laws of planetary motion from Newton's ones (law of universal gravitation and law of motion). We offer one of them which is very simple and direct. It uses only mathematical tools and is suitable for teaching purposes. (pp. 393-400)

HOPF MODULES IN THE WEAK YETTER-DRINFELD CATEGORIES

Yin Yanmin

Suppose that L is a weak Hopf algebra over the field k with a bijective antipode and H is a weak Hopf algebra in the weak Yetter-Drinfeld category ${}^L\mathcal{YD}$. We prove that the fundamental theorem for right H -Hopf modules in ${}^L\mathcal{YD}$. (pp. 401-414)

RIGHT ALTERNATIVE RINGS WITH $x(yz)-y(xz)$ IN THE CENTER

K. Madhusudhan Reddy, K. Suvarna

In [1] it was proved that if R is a prime right alternative ring of char. $\neq 2, 3$ with $(R, R, U) \subseteq U$ or $S(x^2, x, y) = 0$, then either $U = C$ or R is strongly $(-1, 1)$. In this paper first we prove that if R is a prime right alternative ring with $x(yz) - y(xz) \in U$, then $(R, R, U) \subseteq U$. Using this we prove that either $U = C$ or R is strongly $(-1, 1)$. (pp. 415-418)

HYERS-ULAM STABILITY OF LINEAR DIFFERENTIAL EQUATIONS OF SECOND ORDER WITH CONSTANT COEFFICIENT

Jianming Xue

Y. Li and Y. Shen [12] have proved the Hyers-Ulam stability of differential equation $y''(x) + \alpha y'(x) + \beta y(x) = 0$, in the condition that its characteristic equation has two different positive roots. In this paper, we prove that the differential equation $y''(x) + \alpha y'(x) + \beta y(x) = 0$ has the Hyers-Ulam stability, no matter whether its characteristic roots are real or complex. Therefore the results obtained in this paper improve and extend the ones of [12]. (pp. 419-424)

A THEOREM ABOUT FINITE GROUPS WITH SPECIAL CONJUGACY CLASSES

Xianglin Du, Yuming Feng, Jinkui Liu

Let G be a finite group. G has the property that for any conjugacy class length, G has exactly two conjugacy classes having such length. The paper classifies all possible structure of the finite group G under a condition that G' is nilpotent.

(pp. 425-430)

ENERGY OF AN INTUITIONISTIC FUZZY GRAPH

B. Praba, V.M. Chandrasekaran, G. Deepa

In this paper, the concept of energy of fuzzy graph is extended to the energy of an intuitionistic fuzzy graph. We have defined the adjacency matrix of an intuitionistic fuzzy graph and the energy of an intuitionistic fuzzy graph is defined in terms of its adjacency matrix. These concepts are illustrated with real time example. The lower and upper bound for the energy of an intuitionistic fuzzy graph are also derived. (pp. 431-444)

ON UPPER AND LOWER ALMOST CONTRA- ω -CONTINUOUS MULTIFUNCTIONS

C. Carpintero, N. Rajesh, E. Rosas, S. Saranyasri

In this paper, we introduce and study the almost contra- ω -continuous multifunctions between topological spaces and obtain some characterizations and properties of such multifunctions. (pp. 445-460)

IRREDUCIBLE IDEALS IN RINGS

B. Venkateswarlu, R. Vasu Babu, E. Yohannes, T. Embiale

It is well known that the ideals of any ring form an algebraic lattice under the set inclusion ordering, in which the finitely generated ideals are precisely the compact elements. Strongly irreducible ideals of a ring were studied by W.J. Heinzer, L.J. Ratliff and D.E. Rush [3] and α -irreducible and α -strongly irreducible ideals of a ring were characterized by X. Lu and H. Qin [8]. In this paper, we extend these results for elements of a general algebraic lattice and obtain the results on ideals of rings and on submodules of an R -module as consequences of our general results. Also, we characterize algebraic lattices satisfying the ascending chain condition.

(pp. 461-466)

INCLUSION RESULTS ON SUBCLASSES OF STARLIKE AND CONVEX FUNCTIONS ASSOCIATED WITH STRUVE FUNCTIONS

T. Janani, G. Murugusundaramoorthy

The present investigation our goal is to determine necessary and sufficient condition for Struve functions belonging to the classes $\mathcal{J}_\lambda^*(\alpha, \beta)$ and $\mathcal{G}_\lambda^*(\alpha, \beta)$.

(pp. 467-476)

THE MODIFIED (w/g) -EXPANSION METHOD AND ITS APPLICATIONS FOR SOLVING THE MODIFIED GENERALIZED VAKHNENKO EQUATION

Elsayed M.E. Zayed, Ahmed H. Arnous

The modified (w/g) -expansion method for finding traveling wave solutions of non-linear evolution equations is presented in this paper, which can be thought of as the generalization of the well-known (G'/G) -expansion method given recently by Wang et al. When the w and g are taken special choices, some familiar expansion methods can be obtained. Based on these interesting results, we further give two new forms of expansions via the modified (g'/g^2) -expansion method and the modified (g') expansion method. In order to well illustrate the effectiveness of these two modified expansion methods, they are applied to a modified generalized Vakhnenko equation. (pp. 477-492)

ROUGH NEUTROSOPHIC SETS

Said Broumi, Florentin Smarandache, Mamoni Dhar

Both neutrosophic sets theory and rough sets theory are emerging as powerful tool for managing uncertainty, indeterminate, incomplete and imprecise information. In this paper we develop an hybrid structure called *rough neutrosophic sets* and studied their properties. (pp. 493-502)

NEUTROSOPHIC PARAMETRIZED SOFT SET THEORY AND ITS DECISION MAKING

Said Broumi, Irfan Deli, Florentin Smarandache

In this work, we present definition of neutrosophic parameterized (NP) soft set and its operations. Then we define NP-aggregation operator to form NP-soft decision making method which allows constructing more efficient decision processes. We also give an example which shows that they can be successfully applied to problem that contain indeterminacy. (pp. 503-514)

YOUNG TYPE INEQUALITIES FOR MATRICES

Yang Peng

In this note, we present a refinement of an inequality due to Hirzallah and Kittaneh [*Linear Algebra Appl.*, 308 (2000), 77-84]. Meanwhile, we also obtain an improvement of a result shown by Kittaneh and Manasrah [*Linear Multilinear Algebra*, 59 (2011), 1031-1037]. (pp. 515-518)

BOUNDS FOR THE EIGENVALUES OF MATRICES

Limin Zou, Youyi Jiang

In this paper, we prove that all the eigenvalues of arbitrarily complex matrix lies in a closed disk with the radius involving the sum of the squares of the absolute values of the eigenvalues. So, any known upper bound on this sum of squares yields a "new" eigenvalues inclusion region. As applications, some existing results are obtained or improved. (pp. 519-524)

ON THOMPSON'S CONJECTURE FOR ALTERNATING GROUP A_{26}

Shitian Liu, Yanhua Huang

Let G be a group. Denote by $N(G)$ the set of nonidentity orders of conjugacy classes of elements in G . For groups A_{10} , A_{16} and A_{22} which are uniquely determined by $N(G)$, these degrees are $p+3$ and $p+4$ is a prime with $p = 7, 13, 19$. If $p+4$ is composite, then whether can the groups A_{p+3} be characterized by $N(G)$. In this paper, we give an example for A_{p+3} with $p+4$ composite, namely, we proved that if G is a group with trivial center and $N(G) = N(A_{26})$, then $G \cong A_{26}$.

(pp. 525-532)

APPLICATION OF BIPOLAR FUZZY SOFT SETS IN K -ALGEBRAS

M. Akram, N.O. Alsherei, K.P. Shum, A. Farooq

On the basis of the concept of bipolar fuzzy soft sets, a new kind of K -algebra is introduced in this paper. The concepts of bipolar fuzzy soft K -algebras are described and some related properties are investigated. The notion of a generalized bipolar fuzzy soft K -algebra is also introduced and discussed. (pp. 533-546)

SEMIGROUP DISTANCES OF FINITE GROUPOIDS

Barbora Batíková, Šárka Dvořáková, Milan Trch

The simplest cases of non-associative groupoids are presented by groupoids (so called SH-groupoids) having just one non-associative (ordered) triple of elements. In this paper, only SH-groupoids having the simplest possible non-associative triple (a, a, a) are investigated. For each positive integer n finite SH-groupoids $E_n(\cdot)$ generated by at most two elements are constructed and their semigroup distances are described. It is proved that there are finite non-associative groupoids having their semigroup distance equal just to the arbitrary given positive integer n .

(pp. 547-560)

ON HOW TO CONSTRUCT LEFT SEMIMODULES FROM THE RIGHT ONES

Barbora Batíková, Tomáš Kepka, Petr Němec

In the paper, various constructions of left semimodules from the right ones are investigated. (pp. 561-578)

TOWARD A NEW ALGORITHM FOR SYSTEMS OF FRACTIONAL DIFFERENTIAL-ALGEBRAIC EQUATIONS

H.M. Jaradat, M. Zurigat, Safwan Al-Shara', Qutaibeh Katatbeh

This paper is concerned with the development of an efficient algorithm for the analytic solutions of systems of fractional differential -algebraic equations (FDAE). The proposed algorithm is an elegant combination of the Laplace transform method (LTM) with the homotopy analysis method (HAM). The biggest advantage of the Laplace homotopy analysis method (LHAM) over the existing standard analytical techniques is that it overcomes the difficulty arising in calculating complicated terms. Numerical examples are examined to highlight the significant features of this method. (pp. 579-594)

A CHARACTERIZATION OF HIGHER DERIVATIONS ON BANACH ALGEBRAS

T.L. Shaterly, S. Hejazian

Let \mathcal{A} be a Banach algebra and let every module-valued derivation from \mathcal{A} to any Banach \mathcal{A} -bimodule be continuous. We show that if $\{d_m\}$ is a higher derivation from \mathcal{A} to a Banach algebra \mathcal{B} with continuous d_0 , then there exist a continuous left \mathcal{A} -module homomorphism $U : \mathcal{B}(\mathcal{A}_1, \mathcal{B}) \rightarrow \mathcal{B}$ and a sequence $\{D_m\}$ of module-valued derivations from \mathcal{A} into $\mathcal{B}(\mathcal{A}_1, \mathcal{B})$ such that $d_m = U \circ D_m$ ($m \geq 1$), and as a consequence $\{d_m\}$ is automatically continuous. We also obtain a partial result concerning innerness of higher derivations on W^* -algebras. (pp. 595-602)