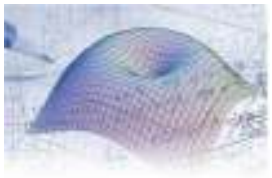

ABSTRACT BOOK

THIRD WESTERN BALKAN CONFERENCE ON MATHEMATICS AND APPLICATIONS

September 7-9, 2023, Prishtine, Kosova

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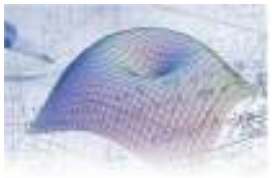
ISBN 978-9951-9120-1-3



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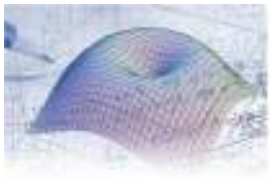
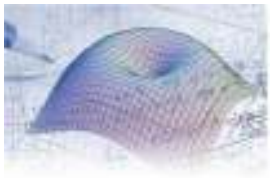


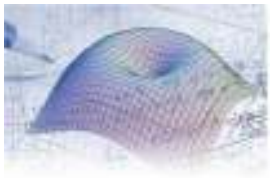


FOREWORD

On behalf of the Organizing Committee, we are very pleased to welcome you to the third Western Balkan Conference on Mathematics and Applications, September 7-9, 2023 (**http://wbcma2023.ilirias.com**), in face to face form supported by Ilirias Research Institute(www.ilirias.com) and University of Prishtina (www.uni-pr.edu), Prishtina, Kosovo. We hope that, fwbcma2023 will be one of the most beneficial scientific events, bringing together mathematicians from all over the world, and demonstrating the vital role that mathematics play in any field of science and its application.

Naim L. Braha

On behalf of the organizing committee



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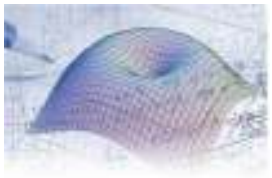

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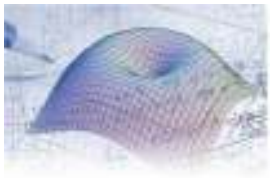

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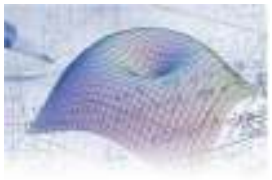

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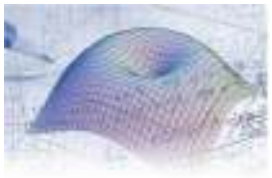


Invited speakers

Mujahid Abbas
Department of Mathematics, Government College University, Lahore, Pakistan

Petro Aiena
Dipartimento d'Ingegneria Universit`a di Palermo Viale delle Scienze 90128 Palermo Italy

Arian Berdellima
German International University in Berlin, Germany

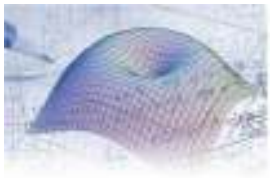
Donco Dimovski
Department of Mathematics, University of Skopje, North Macedonia

Fuad Kittaneh
Department of Mathematics, The University of Jordan

Ekrem Savas
Usak Universitesi, Turkey

Yilmaz Simsek
Department of Mathematics, Faculty of Science Akdeniz University Antalya-TURKEY

Ilir Snopce
Universidade Federal do Rio de Janeiro, Brasil



WEYL TYPE THEOREMS FOR OPERATORS ON BANACH SPACES

PIETRO AIENA,

DEIM, UNIVERSITA` DI PALERMO (ITALY)

Abstract: This talk concerns the more important versions of Weyl type theorems for linear bounded operators defined on infinite-dimensional complex Banach spaces. In 1909 Hermann Weyl: *Uber beschrankte quadratiche Formen, deren Dif- ferenz vollsteig ist.* Rend. Circ. Mat. Palermo 27, (1909) showed that selfadjoint operators on Hilbert spaces have a very spectral structure. This structure has been later observed for classes of nonnormal operators, as Toeplitz operators on Hardy spaces. But, successively, it has been proved that many other classes of operators satisfy Weyl's theorem.

The local spectral theory has a central role in this theory. In particular, the localized version of the single-valued extension property (SVEP at a point) is a precious tool to prove Weyl type theorems. In this talk we also consider some variants of the classical Weyl's theorem, and we offer a large overview of the classes of operators for which Weyl type theorems hold. In particular, we shall consider the recent variant, called *S*-Weyl' s theorem, recently introduced in [3] for Toeplitz operator T_ϕ on Hardy spaces, where ϕ is a continuous function on the unit disc.

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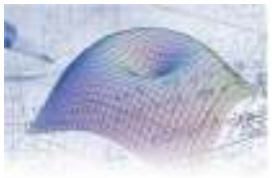

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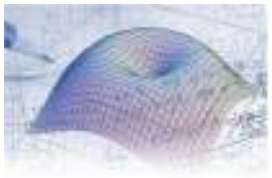

A New Class of Non Normal Operators in Hilbert Spaces

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Abstract: Let T be a bounded linear operator on a complex Hilbert space H. We introduce, a new class of non normal operators called the (M,k) −quasi paranormal operator. An operator T is said to be a (M,k) −quasi paranormal operator if it satisfies $\|T^{k+1}x\|^2 \leq M\|T^{k+2}x\| \cdot \|T^k x\|$, for all $x \in H$ and a non-negative integer k and a real positive number M.

We will prove the structural and spectral properties, and the matrix representation of this new class of operators.

Keywords: *(M,k)- q*uasi paranormal operator, *M*- quasi paranormal operator

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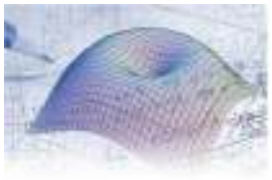

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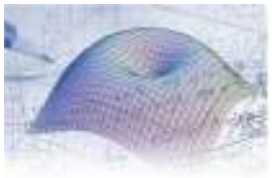

A New Defuzzification Formula for

Poygonal Fuzzy Numbers and its Application

Salih AYTAR

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Abstract: In this talk, we obtain a graded mean defuzzification formula for the polygonal fuzzy numbers. Then we applied this formula to the basic economic order quantity model in order to get optimal results.

Keywords: Graded mean defuzzification, inventory without backorder, polygonal fuzzy number.

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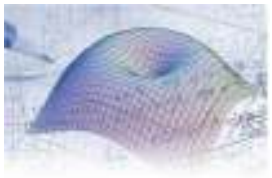

On Iq-lacunary statistical convergence functions of order α

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Abstract: In this paper, we combine the approaches of [5] and [6] and introduce a new further general notion , namely I(θ, q) -statistical convergence of order α a real valued function x(t), which are measurable (in the Lebesque sense) in the interval (1,∞). We mainly investigate some basic properties of this new summability method. I should point out that until now, the concepts of Iq-statistical convergence and Iq-lacunary statistical convergence for functions has not been studied. We also mainly investigate their relationship and also make some observations about these classes.

Keywords: Ideal, filter, I-statistical convergence, Iq-lacunary statistical convergence, q-statistical convergence of order α

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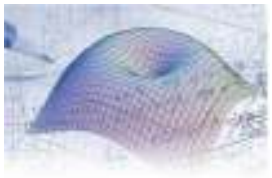

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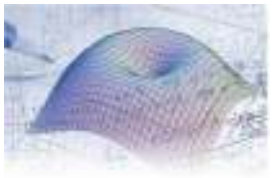

Note on Extensions of positive linear functionals

Salvatore Triolo

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Abstract: I study, from a quite general point of view, the family of all extensions of a positive hermitian linear functional ω, defined on a dense*-subalgebra of a topological *-algebra A[τ], with the aim of finding extensions that behave regularly. The obtained results are applied to the integration theory comparing them with the well-known extensions of Lebesgue integral.

In conclusion we use these results for introducing of

a Radon Nikodym theorem in the context of quasi*algebras.

Keywords: Topological *- algebra, Extensios of positive linear functionals.

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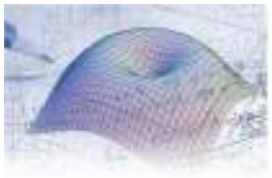

Some Novelty Inequalities via New Generalized Tempered Fractional Integral Operators with Applications

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Abstract: In this paper, we introduce new operators, the so-called left and right generalized tempered fractional integral operators. We investigate the Chebyshev inequality via these generalized tempered fractional integral operators. Moreover, we derive new results of this type of inequalities for finite products of functions. In addition, we establish an estimate for the Chebyshev functional by using the new generalized tempered fractional integral operators. From our above-mentioned results, we recaptured similar inequalities for some specialized fractional integrals keeping some of the earlier results in view. Furthermore, two important results and some interesting consequences for convex functions in the framework of the defined class of generalized tempered fractional integral operators are obtain. Finally, two nontrivial examples demonstrated the significance of our results.

Keywords: Chebyshev inequality, Generalized tempered fractional integral operators, Synchronous functions, Integral inequalities.

References:

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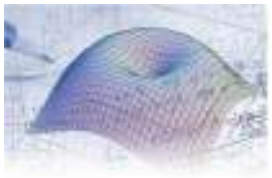

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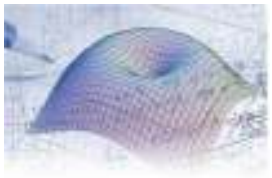

Results on Reverse Minkowski type Inequalities via New Generalized Tempered Fractional Integral Operators and Applications

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Abstract: The paper proposes a new generalized tempered fractional integral operator and utilizes it to establish numerous reverse Minkowski inequalities. Furthermore, we derive some special cases for suitable functions and derive various applications to illustrate the obtained results. Additionally, novel applications involving digamma functions are introduced.

Keywords: Minkowski inequality, Generalized tempered fractional integral operators, Synchronous functions, Digamma function, Integral inequalities.

References:

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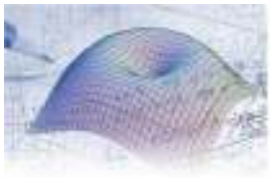

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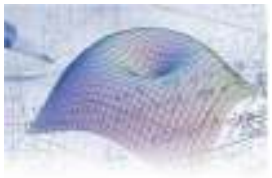

Numerical radius equalities and inequalities for Hilbert space operators

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Joint work with Abdelkader Frakis

Abstract: We prove new numerical radius equalities and inequalities for Hilbert space operators. We also provide some upper bounds for the numerical radii of certain 2×2 operator matrices.

Keywords: Normal operator; numerical radius; operator norm; inequality.

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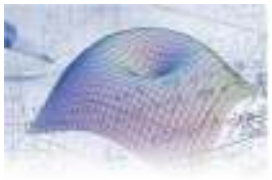

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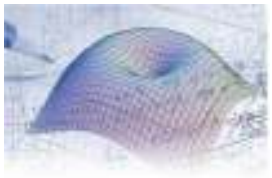

Some fixed point theorems for (α, φ)-nonlinear contractions on extended cone b-metric spaces over Banach algebras

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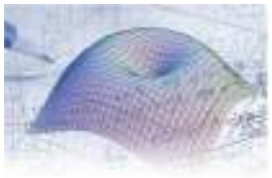
Abstract:

Fixed Point Theory is one of the most important branch of Functional Analysis. It started in 1922, when the polish scientist Stephan Banch proved the existence and the unicity of a fixed point for a contractive function in a metric space. Since then, many authors have placed it in the center of their research work.

Huang dhe Zhang [1] generalized in 2007 metric space to cone metric space and proved Banach's contraction in this new space. Their ideas were followed by other mathematians such as Shaddad dhe Noorami [2], Hussain [3].

In 2013, Liu and Xu [4] presented the concept of cone metric spaces over Banach algebras. The authors Huang and Radenovic [5] worked on these new spaces generalizing some wellknown results on metric spaces.

In 2017, Fernandez et al. [6] defined the cone b-metric spaces over Banach algebras and proved some fixed point results on them.



Recently, Fernandez et al. [7], generalized the results of [6], giving the concept of extented cone b-metric space over Banach algebras and proving the existence of a fixed point for Lipschitz functions.

The highlight of this paper is the study of the existence of a fixed point for (α, φ)-nonlinear contraction where $\alpha: X \times X \to [1_A, +\infty)$ is an admissible mapping and $\varphi: P \to P$ a comparison function. Our results, generalize some theorems in above mentioned in literature.

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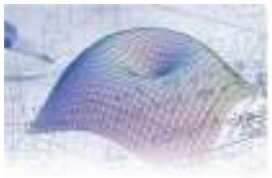

Weighted *(N,p,q)(E,1)* statistical convergence on time scal

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Abstract: In this paper, we present the new type of convergence which we clled weighted *(N,p,q)(E,1)* statistical convergence and *(N,p,q)(E,1)*−summability of delta measurable functions on time scales. We also establish some results which are relations between these concepts.

Keywords: Statistical Convergence, *(N,p,q)(E,1)* statistical convergence on time scal, *(N,p,q)(E,1)* summability on time scal.

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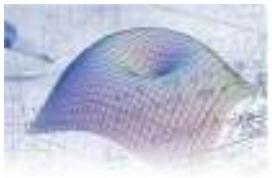

(E, pq)(C,1) Statistical *I*-convergence of order α

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Abstract: Concept of statistical convergence through ideals and some basic results of *I*-convergence were studied by Kostyrko (see [23], [24]). Then, Lahiri (see [25]) is defined concept of *I*-convergence and proved some result of statistical convergence through ideals in topological spaces. In this paper we generalized $(E, p)(C, 1)$ summability method which symbolically we write $(E, pq)(C, 1)$ sumabillity, also using this new summability method we defined new type of *I*-convergence which we call $(E, pq)(C, 1)$ statistical *I*-convergence of order α. Furth more, we studied some results related about this type of convergence.

Keywords: Statistical Convergence, *I*-statistical convergence, *(E,pq)(C,1)* statistical convergence, *(E,pq)(C,1)* summability.

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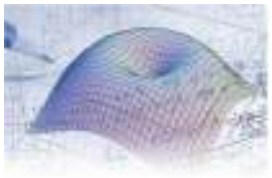

Necessary and sufficient Tauberian conditions for weighted Cesaro-Euler mean methods of summability in two-normed spaces

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Abstract. In this paper we introduce the concept of weighted Cesaro-Euler mean method of summability and then present necessary and sufficient Tauberian conditions for the weighted Cesaro-Euler mean summability of sequences in two-normed spaces. Also, we construct two-normed analogues of two classical Tauberian theorems.

Keywords: Tauberian theorem, Generalized Cesaro-Euler summability method, two normed space.

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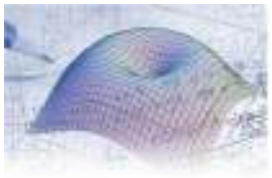

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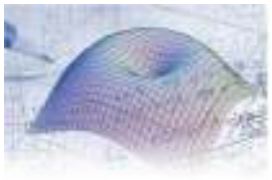

Notes on New Certain Classes of Polynomials and Numbers involving Apostol-Bernoulli numbers and polynomials

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Abstract: The aim of this presentation is to study and survey on the certain family of special numbers and polynomials. We give relations among these special numbers and polynomials, the numbers $\ell_n(v)$ and the Bernoulli-type, Euler-type, Apostol-type numbers and polynomials, the Stirling numbers. Finally, we give some remarks and observations on these results.

Keywords: Generating function, Special functions, Bernoulli numbers and polynomials, Apostol Bernoulli numbers and polynomials, Stirling numbers, Fubini numbers, Combinatorial numbers and sum, Umbral calculus convention.

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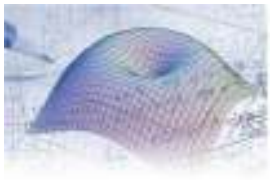

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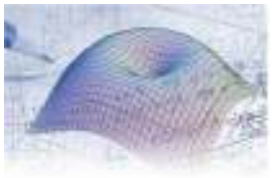

On the Shape Preserving Properties of a New Class of Blending-type Bernstein Operators

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Abstract:

The concept of 'shape' relates to the geometrical and numerical behavior of a function or an operator's graph, consisting of the terms such as positivity, linearity, monotonicity, and convexity. It is an essential and meaningful requirement to work with approximation tools that recreate the most fitting physical accuracy over real-life problems with complex nature. This branch of approximation is called the shape-preserving approximation method, and they are quite popular among researchers specializing in robotics, chemistry, computer-based geometric design, etc. The shape-preserving approximation notion was first addressed in works by Shisha [1] and Lorentz and Zeller [2], and subsequently, the literature on the subject was improved over the decades by many other researchers (see [3–5] and references therein). Inspired by all these works previously done on the topic, in this talk, we aim to present our results on the shape-preserving properties of a new class of Bernstein operators constructed via Bezier bases given with a shape parameter.

Keywords: Shape preservation, Shape-preserving approximation, Shape parameter, Bezier bases.

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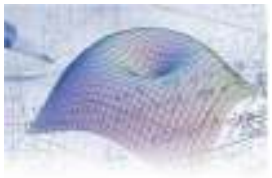

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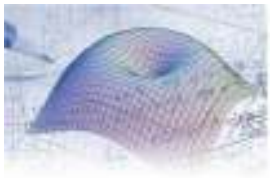

Remarks on Two-Variable Simsek Polynomials with the Applications of p-adic Integrals on p-adic Integers

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Abstract: The motivation for this presentation is to give a relation between the two-variable Simsek polynomials and some special numbers. We give many new and interesting formulas and relations for these polynomials. These results cover the Bernoulli numbers, the Stirling numbers, the Daehee numbers, the Changhee numbers, and some special numbers and polynomials.

Keywords: Bernoulli numbers, Changhee numbers, Daehee numbers, Stirling numbers, Two-variable Simsek polynomials, p-adic integrals.

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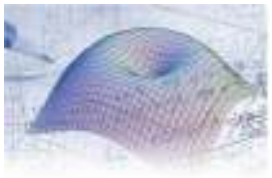

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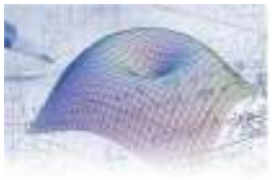

Evaluation of transmission eigenvalues of an interior transmission eigenvalue problem

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Abstract: Inverse scattering is a very important area of the contemporaneous field of partial differential equations and it is developing continuously [4]. Solving an inverse scattering problem is usually a challenge because these problems are mostly ill-posed, hence finding a solution for a given problem is very demanding. The problem in this work is a transmission eigenvalue problem, where two second-order partial differential equations involved are associated with boundary conditions. Previously, we studied the homogeneous problem known as the transmission eigenvalue problem. We proved the discreetness and the existence of the transmission eigenvalue [5]. For applicative use, discreetness provides the success of operating with numerical methods to find an approximate solution and the existence of transmission eigenvalues guarantees material data of the scattering object [1], [2]. In this paper, we present the pattern of the problem which is needed to operate with the numerical analysis tools and then we present a numerical method [3] to find the transmission eigenvalues.

Keywords: inverse scattering, transmission eigenvalues, finite element method

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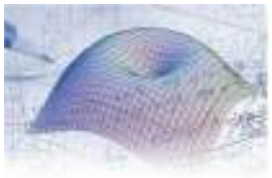

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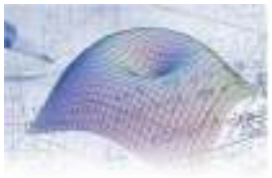

THE ALBANIAN ELECTRICAL ENERGY SYSTEM MODELED AS PORTFOLIO OPTIMIZATION PROBLEM

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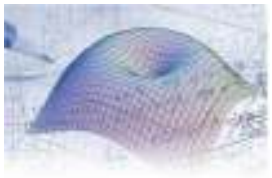
Abstract. The electric power system is one of the most important sectors that directly affects the economic development of a country. The electricity corporation in Albania is negotiating for the approval of an open energy market under the Albanian Market Model (AMM). Albania has a convenient geographical position in which to position itself in the hydropower system in the country since it uses water resources, so it should take the main position in the development of the regional market. The country's production capacities are still underutilized. In this paper, we will discuss the benefits that the country will have if it enters an open market, which will improve the investment climate and make it more attractive to potential investors. The recent changes in the energy sector around the world are looking more closely at the optimization of the portfolio problem in the electricity markets. This problem is modeled as a classic portfolio optimization problem, taking into account the market price prediction error as part of the risk. First, a forecast was made with the help of a time series. The portfolio optimization problem has been solved with one of the most efficient optimization methods, such as PSO (Particle Swarm Optimization). The study is based on real data from the Drin cascade in Albania as well as from the Albanian Electricity Corporation. Optimization and time series models are presented to give an overview of the potential production in the hydropower plants of the largest cascade in Albania (the Drin cascade). Using the data provided in the portfolio optimization problem, the quotation of the sale and purchase of energy in the country is presented as a model of portfolio optimization for the Albanian electricity market.

Keywords: Economic portfolio, electric power system, optimization, PSO.



Relations of the Combinatorial Simsek Numbers with the Number of Necklaces of Prime-Power Length

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Abstract: In this presentation, by taking advantage of an identity given by the author in her recent paper [14], and using a few properties of the Euler's totient function, we present some relations of the combinatorial Simsek numbers with the number of necklaces composed of prime-power length beads coloured with one of k possible colors. At the end of this presentation, we also present a discussion on several special cases of our results with some comments and observations.

Keywords: Necklaces, Combinatorial Simsek numbers, Euler's totient function, Arithmetical functions, Powers of binomial coefficients, Finite sums, Divisor sums, Dirichlet convolution, **Generating** functions, Stirling numbers of the second kind, Generalized Franel numbers, Moment sums.

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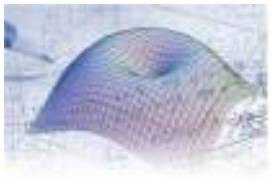

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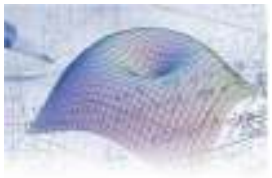

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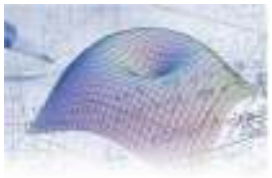

Sturm–Liouville problem that operates with Riemann–Stieltjes integral boundary conditions

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Abstract:

In this paper, we are focused on the well-known *Sturm-Liouville* problem, that operates on non-classical boundary conditions related to the *Riemann-Stieltjes* integral. The *Riemann-Stieltjes* integral used in this paper is given in the form $lim_{n\to\infty}\int_a^b y(s)dg_n(s)$. These conditions are taken to study the existence of a sequence of positive eigenvalues with consecutive zero counts of the eigenfunctions. Based on the non-classical boundary conditions given above, we derive a relation that exists between the eigenvalues of a classical problem and a problem that includes the *Riemann-Stieltjes* integral in its boundary conditions. We also present some examples that proof the above conclusions.

Keywords: Sturm-Liouville problem, eigenvalues, boundary conditions, function with bounded variation, Riemann-Stieltjes integral.

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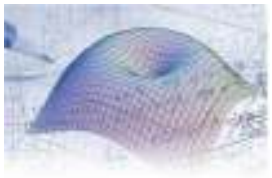

A new Boubaker collocation method for solutions of the first order differential equations with variable delays

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Abstract: In this study, a new numerical method is presented for first order differential equations with variable delay [1]. The suggested new method is a collocation method based on integrating and Boubaker polynomials. The method begins by approximating the first derivative in the equation as a finite series of the Boubaker polynomials. Then, this approximation is expressed in terms of the matrix form of the Boubaker polynomials [2]. By integrating the obtained approximation form and using the condition, the Boubaker series form of the unknown function in the equation is obtained. By using the matrix form of the unknown function, the matrix form of the delay term in the equation is constructed. After these found expressions are written into the equation, the collocation points are used and matrix forms are obtained. And by using these matrix forms and operations, the problem is reduced to a system of algebraic equations. As can be seen from the tables and graphics in the examples, the new method gives better results than other standard polynomial approaches in the literature.

Keywords: Collocation method, Boubaker polynomials, delay differential equations, differential equations with variable delays.

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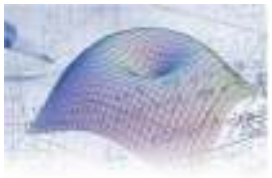

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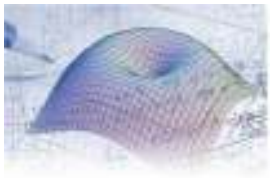

An application of Inverse Scattering Problems using MATLAB

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Abstract: Inverse scattering problems are becoming very crucial in a lot of fields nowadays. This work explores the fundamental principles and methodologies used to reconstruct the properties of an unknown object from the scattered waves. This process involves getting information about the shape, composition, and other characteristics of the target by analyzing the interactions between waves and the scattered field. The algorithm that will be used in this work is the linear sampling method, which was first introduced by Colton and Kirsch [1], [2], [3]. Due to some limitations of LMS such as the sensitivity to noise, which would affect the accuracy of the far field pattern analysis, often we address to the Generalized Linear Sampling [4] for a broader range of inverse scattering problems. An implementation for this problem is provided by using MATLAB.

Keywords: inverse scattering problem, linear sampling method, generalized linear sampling, implementation

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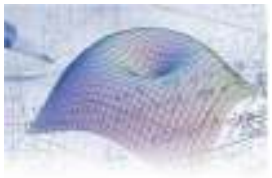

CR-Fuzzy Soft Sets and Applications

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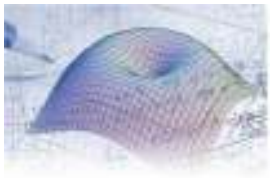
Abstract: Researchers have been working on the mathematical modeling of uncertainty for a long time. This started with Zadeh's fuzzy set [1] work in 1965. This was followed by Chang [2] in 1968 , Rosenfeld [3] in 1971, Pawlak [4] in 1982 etc. In order to broaden the definition of the fuzzy set idea Atanassov [5] defined the intuitionistic fuzzy set in 1986. This has laid the foundation for other significant investigations. One of the most significant extensions of classical fuzzy sets is intuitionistic fuzzy sets. Intuitionistic fuzzy sets are efficient to dealing with uncertainties.With the Molodtsov [6] manuscript, another significant advancement in resolving doubts was made in 1999. By developing the soft set theory, he recovers mathematical calculation uncertainty.

After that, many sets were defined, including fuzzy soft sets [7], intuitionistic fuzzy soft sets [8,9,10]. It was attempted to fight against difficult uncertainty. These sets have also found use in a variety of fields, for example: including deep learning, machine learning, medicine diagnosis, decision-making issues etc.

In 2011, N. Cagman, S.Enginoglu and F.Citak [11] redifened the fuzzy soft set and their operations. They developed a fuzzy soft aggregation operator that enables the creation of decision-making processes that are more effective.



In 2013, Yager [12] created the concept of Pythagorean fuzzy sets, which is a generalization of intuitionistic fuzzy set, to clarify circumstances.Finally, in 2023 Yousif A. Salih and Hariwan Z. Ibrahim [13] compare CR-fuzzy sets to Pythagorean fuzzy sets and created a new class of generalized fuzzy sets known as CR-fuzzy sets. In this investigation, we provide CR fuzzy soft

set definitions and certain operations between these sets. Our findings can also be used to decision-making problem scenarios.

Keywords: Fuzzy set, Soft set, Fuzzy soft set, intuitionistic fuzzy soft set, CR-fuzzy set, CR-fuzzy soft sets

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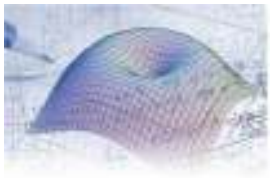

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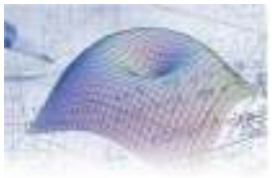

Approximation properties of some recent blending-kind Bernstein operators

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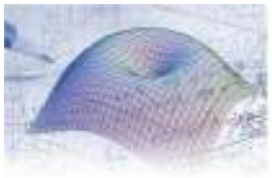
Abstract: An alternative approach, known today as the Bernstein polynomials, to the Weierstrass uniform approximation theorem was provided by Bernstein. These and –newly defined polynomials via certain shape parameters- basis polynomials have attained increasing momentum, especially in operator theory, integral equations and computer-aided geometric design. This presentation is devoted to studying the statistical approximation properties of certain sequence of univariate blending-type Bernstein operators that includes different shape parameters.

Keywords: Statistical convergence, Bernstein polynomials, blending kind operators.



General Formulas in the Table of $\bar{g} - Derivatives$ for $\bar{g} - Functions$

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Abstract: The consistant system of pseudo-aritmetical operations and its generator $\bar{g}$ are applying to $\bar{g} - functions$ that are derived as solutions of some functional equations using some results of Aczél [1]. Some interesting classes of $\bar{g} - functions$ are build [2] and the $\bar{g} - calculus$ for real functions introduced in [3] and investigated in [4] marks a new development. But, $\bar{g} - derivative$ [3] open a new perspective highlighting the basic properties of these $\bar{g} - transform$ functions [2]. Based on the basic properties of these $\bar{g} - functions$ [2], we have further outlined our study in verifying other properties and generalization of the table of $\bar{g} - derivatives$ for these transform functions with general formulas, also power and Chain rule as $\bar{g} - formulas$. The table of $\bar{g} - derivatives$ for $\bar{g} - functions$ will be completed in the following, showing once again the importance of generated pseudo-analysis with the wide field of its applications.

Keywords: generator, $\bar{g} - functions$, $\bar{g} - derivatives$, table of $\bar{g} - derivatives$

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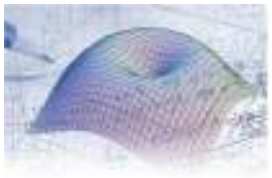

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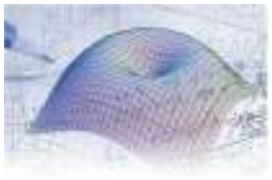

Application of Fuzzy Soft Matrix Theory in Decision Making Problem by Using Medical Diagnosis

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Abstract: Decision making is essential in dealing with complex problems involving uncertain data and uncertainty in different industries. Molodtsov [1] proposed a new approach called "soft set theory" to model such uncertainties. Soft Set Theory is mostly used in combination with Fuzzy Set. In this study, the fs-max-min decision making [2] and T-product of fuzzy soft matrix methods [3] of Fuzzy Soft Matrix Theory for Medical Decision Making were applied to Cleveland heart disease real data. The results were compared with the results obtained by the Roy-Maji method [4] and the advantages and disadvantages between the methods were revealed.

Keywords: Fuzzy soft set, Decision making, Fuzzy soft matrix, Fuzzy soft max-min decision making, T-product of fuzzy soft matrix

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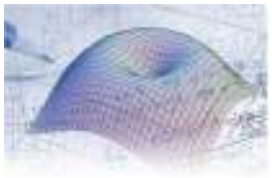

Continuity up to a Covering and Connectedness

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Abstract: Recently, the notions of continuity up to a covering and chain connectedness are introduced. Here we combine both notions to provide the inheritance of connectedness for the topological spaces even when there is no continuous surjection between them.

Keywords: Continuity up to a covering, Chain connectedness, Connectedness.

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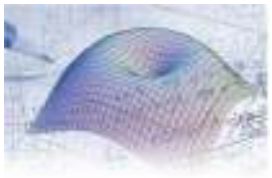
Third Western Balkan Conference on Mathematics and Applications; September 7-9, 2023, Prishtine, Kosovo
(http://wbcma2023.ilirias.com/)



A Class of integer 3×3 MATRICES RELATED TO NUMERICAL SEMIGROUPS with EMBEDDING DIMENSION **4**

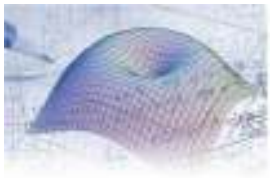
Dončo Dimovski

ABSTRACT

A class of integer 3×3 matrices, called *(n,j,k)-good* matrices, related to numerical semigroups with embedding dimension 4, generated by four integers n, x, y and z such that $x \equiv 1(modn),\ y \equiv j(modn),\ z \equiv k(modn)$ and $n < x < y < z$ is introduced. For an (n,j,k)-good matrix M, we describe the Apéry set with respect to n, of the numerical semigroup related to M. For given natural numbers n, j and k, where $1 < j, k < n$, $k \neq j$, and a 2×2 (n,j)-good matrix $K_0 = \begin{bmatrix} a_0 & -u_0 \\ -b_0 & v_0 \end{bmatrix}$ we present an algorithm for obtaining all the (n, j, k)-good matrices

$$M = \begin{bmatrix} a & -u & -p \\ -b & v & -q \\ -c & -w & r \end{bmatrix}$$

such that $a \leq a_0$ and $v \leq v_0$.



Banach spaces of sequences arising from infinite matrices

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Abstract: Given an infinite matrix $M=(m_{nk})$ we study a family of sequence spaces ℓ_M^p associated with it. When equipped with a suitable norm $\|\cdot\|_{M,p}$ we prove some basic properties of the Banach spaces of sequences $(\ell_M^p,\|\cdot\|_{M,p})$. In particular we show that such spaces are separable and strictly/uniformly convex for a considerably large class of infinite matrices M for all $p>1$.

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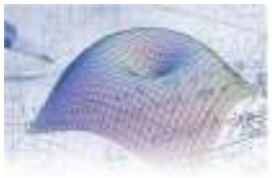

THE CONDITIONAL EXPECTATION LINEAR OPERATORS WITH APPLICATION

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ABSTRACT. In this paper, we present a new approach of the existence of conditional expectation for Bochner integrable functions $f:\Omega \to X$ with respect to a sub-σ-algebra S of Σ, where (Ω, Σ, X) is a complete probability space and X is a Banach space. As an application we characterize relatively compact subset of the Banach space $L_p(\Omega, \Sigma, X)$

in terms of conditional expectation linear operators.

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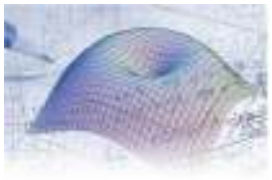

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