

Schedule ICATA 2016

Location:

Lucian Blaga University of Sibiu
Center for Academic Meetings
Banatului Street 6, Sibiu

Thursday 26 May

14:00-19:00 Reception

19:00-20:00 Welcome Cocktail (LBUS Cafeteria)

Friday 27 May

09:00-09:30 Opening Ceremony (Senat Hall, Faculty of
Medicine, Str. Lucian Blaga, No. 2A, Sibiu)

Speech:

Assoc. Prof. Dr. Florin Sofonea-Organizer of
ICATA 2016

Prof. Dr. Ing. Ioan Bondrea-Rector of Lucian
Blaga University of Sibiu

Assoc. Prof. Dr. Angela Bănăduc-Dean of Faculty
of Sciences

Prof. Dr. Mugur Acu-Director of Department of
Mathematics and Informatics

Plenary Lecture

Chairman: Mircea Ivan

09:30-10:00 Vijay Gupta, *Some problems in approximation by linear positive operators*

10:00-10:30 Octavian Agratini, *Recent results on linear and positive operators*

10:30-11:00 Coffee break

Lecture

Chairman: Ioan Gavrea

11:00-11:15 Harun Karsli, *Approximation problem for certain linear positive operators that approximate the Urysohn type operator*

11:15-11:30 Naokant Deo, *Modified Durrmeyer operators based on inverse Pólya-Eggenberger distribution*

11:30-11:45 Mircea Ivan, Ioan Gavrea, *Some asymptotic expansions of a sequence of Keller*

11:45-12:00 Radu Păltănea, Maria Talpău Dimitriu, *Moduli of continuity and related K -functionals*

12:00-12:15 Gancho Tachev, *Voronovskaja's theorem for functions with exponential growth*

12:15-12:30 Traian Ionuț Luca, *Bi-criteria problems for energy optimization*

12:30-12:45 Bogdan Gavrea, *Stochastic complementarity problems for a class of rigid body systems*

12:45-13:00 Dorin Ghisa, *Partial Euler Products and the Great Riemann Hypothesis*

13:00-13:15 Beatrice Daniela Bucur, *Interpreting modal logics using labeled graphs*

13:15-13:30 Şule Yüksel Güngör and Nurhayat Ispir, *Shape preserving properties of generalized Szász operators of max-product kind*

Plenary Lecture

Chairman: Radu Păltănea

15:00-15:30 Purshottam Agrawal, *Generalized boolean sum of linear positive operators*

15:30-16:00 Ali Aral, *Asymptotic properties of multivariate Durrmeyer type operators*

Lecture

Chairman: Purshottam Agrawal

16:00-16:15 Gülen Başcanbaz-Tunca, Ayşegül Erençin, Fatma Taşdelen, *Some properties of Bernstein type Cheney and Sharma operators*

16:15-16:30 Tuncer Acar, *Bernstein operators which preserve exponential functions*

16:30-16:45 Nesibe Manav, Nurhayat Ispir, *Approximation by blending type operators base on Lupaş-Szász functions*

16:45-17:00 Müzeyyen Özhavzali, Ayhan Aydın, *A comparison for some linear positive operators by calculating the errors in the approximation*

17:00-17:30 Coffee break

Chairman: Vijay Gupta

- 17:30-17:45 Alina Baboş**, *Interpolation operators on a square with one curved side*
- 17:45-18:00 Özlem Acar, Ishak Altun**, *On some fixed point results in metric spaces endowed with a graph*
- 18:00-18:15 Augusta Raţiu**, *A refinement of Gruss inequality*
- 18:15-18:30 Nicuşor Minculete**, *A note on two inequalities with the convex functions*
- 18:30-18:45 Adonia-Augustina Opreş**, *A class of Aczel-Popoviciu type inequality*
- 18:45-19:00 Ioan Ţincu**, *On a Markov method*
- 19:00-19:15 Dimitrios Haidas, Ana Maria Acu, Nikos Mastorakis, John Kechgias**, *The influence of fused PLA temperature on to the FFF process performance*
- 19:15-19:30 Shikha Pandey**, *Approximation properties of Chlodowsky variant of (p, q) -Bernstein-Stancu-Schurer operators*
- 19:30-19:45 Khalid Khan**, *Bezier curves based on Lupaş (p, q) -analogue of Bernstein polynomials in CAGD*

Saturday 28 May

Plenary Lecture

Location: Senat Hall, Faculty of Medicine

Chairman: Ali Aral

09:00-09:30 Razzaghi Mohsen, *An efficient technique for the solution of fractional ordinary differential equations*

Lecture

Chairman: Ali Aral

09:30-09:45 Antonio Jesus Lopez Moreno, *Taylor-Durrmeyer type operators*

09:45-10:00 Teodora Zapryanova, *On the Iterates of Continuous Linear Operators Preserving Constants and Jackson Type Operators $G_{s,n}$*

10:00-10:15 Purshottam Agrawal, Ana Maria Acu, Manjari Sidharth, *Approximation degree of a Kantorovich variant of Stancu operators based on Pólya-Eggenberger distribution*

10:15-10:30 Dilek Özden, *On uniform approximation by modified q -Bleimann, Butzer and Hahn operators*

10:30-10:45 Voichița Radu, Carmen Muraru, Florin Sofonea, *Some approximation properties of a Durrmeyer variant of q -Bernstein-Schurer operators*

10:45-11:00 Trapti Neer, Acu Ana Maria and Agrawal Purshottam, *Degree of approximation by Chlodowsky variant of Jakimovski-Leviatan-Durrmeyer type operators*

11:00-11:30 Coffee break

Chairman: Antonio Jesus Lopez Moreno

11:30-11:45 Calin-Ioan Gheorghiu, *Two distinct ways to introduce the Chebyshev polynomials*

11:45-12:00 Vlad Ciobotariu-Boer, *Some new integral inequalities for twice differentiable functions*

12:00-12:15 Adela Ionescu, *Optimal control of a stochastic version for the Lotka-Volterra model*

12:15-12:30 Mihaela Mioara Mirea, Ionuț Ivanescu, *Extensions of inequalities*

12:30-12:45 Emil C. Popa, *On a conditional inequality*

12:45-13:00 Mioara Boncuț,

13:00-13:15 Adrian Gîrjoabă, *Elliptic curves arising from an elementary problem*

13:15-13:30 Emilia Loredana Pop, *Scalar and Vector Optimization*

Special Session "Algebra and Number Theory"

Location: Center for Academic Meetings

Chairman: Ilker Akkus

Plenary Lecture

09:00-09:40 Toma Albu, *The conditions (C_i) in rings, modules, categories, and lattices*

Lecture

09:40-10:00 Ilker Akkus, *On some combinatorial identities*

10:00-10:20 Talha Arikan, *Evaluating Some Hessenberg Determinants via Generating Functions*

10:20-10:40 Yeliz Kara, Adnan Tercan, *p -extending modules with Abelian endomorphism rings*

10:40-11:00 Coffee break

11:00-11:20 Teodor Dumitru Vălcan, *About a category of Abelian groups*

11:20-11:40 Gonca Kizilaslan, *Matrix representation of some binomial identities*

11:40-12:00 Sibel Koparal, *Some congruences with balancing and Lucas-balancing numbers*

12:00-12:20 Neşe Ömür, *On the matrices with the generalized hyperharmonic numbers of order r*

15:00-17:00 Visiting Astra Museum of Traditional Folk Civilization

17:00 Departure to Păltiniș

18:00-22:00 Official Dinner

Abstracts ICATA 2016

Acar Özlem, Altun Ishak

Title: ON SOME FIXED POINT RESULTS IN METRIC SPACES ENDOWED WITH A GRAPH

Abstract. In this talk, we give some fixed point theorems considering F-G-contraction on metric spaces with a graph. Some illustrative examples are also presented to show the importance of graph on the contractive condition.

Acar Tuncer, Aral Ali

Title: BERNSTEIN OPERATORS WHICH PRESERVE EXPONENTIAL FUNCTIONS

Abstract. This speech is devoted to a modification of Bernstein operators which fix the functions 1 and $e^{2\alpha x}$ ($\alpha > 0$). Our aim in this construction is to obtain better approach with Bernstein operators. We investigate uniform convergence of new constructions and present the rate of convergence via modulus of continuity. Using generalized convexity, we examine shape preserving properties of the operators. The comparisons of new constructions with classical Bernstein operators are also discussed, graphical examples to show the flexibility of new operators are presented as well.

Agratini Octavian

Title: RECENT RESULTS ON LINEAR AND POSITIVE OPERATORS

Abstract. Our speech targets two aspects. Firstly we deal with a general class of linear approximation processes designed using series. The main goal is to identify functions for which these operators provide uniform approximation over unbounded intervals. Secondly, starting from positive linear operators which have the capability to reproduce affine functions, we construct integral

operators of Kantorovich-type which enjoy by the same property. We focus to show that the error of approximation can be smaller than in classical Kantorovich construction on some subintervals of its domain. In both research directions, particular cases are highlighted.

Agrawal Purshottam

Title: GENERALIZED BOOLEAN SUM OF LINEAR POSITIVE OPERATORS

Abstract. Karl Bögel (1934,35) initiated the study of B-continuous and B-differentiable functions. Badea and Cottin (1990) introduced the concept of GBS operators (Generalized Boolean Sum operators) and proved an important "Test function theorem" (the analogue of the well known Korovkin theorem) for the approximation of B-continuous functions by GBS operators. In the recent years, several researchers have contributed to this area of approximation theory. In the present talk, I propose to discuss these researches and the future scope of work.

Agrawal Purshottam, Acu Ana Maria and Sidharth Manjari

Title: APPROXIMATION DEGREE OF A KANTOROVICH VARIANT OF STANCU OPERATORS BASED ON PÓLYA-EGGENBERGER DISTRIBUTION

Abstract. This paper is in continuation of the work done by Deo et al. [1], in which the authors have established some approximation properties of the Stancu-Kantorovich operators based on Pólya-Eggenberger distribution. We obtain some direct results for these operators by means of the Lipschitz class function, the modulus of continuity and the weighted space. Also, we study an approximation theorem with the aid of the unified Ditzian-Totik modulus of smoothness $\omega_{\varphi^\tau}(f; t)$, $0 \leq \tau \leq 1$ and the rate of convergence of the

operators for the functions having a derivative which is locally of bounded variation on $[0; \infty)$.

References

[1] N. Deo, M. Dhamija and D. Miclăuş, *Stancu-Kantorovich operators based on inverse Pólya-Eggenberger distribution*, Appl. Math. Comput. 273 (2016) 281-289.

Akkus Ilker

Title: ON SOME COMBINATORIAL IDENTITIES

Abstract. We present some closed forms for sums involving the binomial coefficients, Fibonacci and Lucas numbers in terms of the falling factorial.

Albu Toma

Title: THE CONDITIONS (C_i) IN RINGS, MODULES, CATEGORIES, AND LATTICES

Abstract. In this talk we present the latticial counterparts of the conditions (C_i) , $i = 1, 2, 3, 11, 12$, for modules. In particular, we discuss the lattices satisfying the condition (C_1) we call CC lattices (for Closed are Complements), i.e., the lattices such that any closed element is a complement, that are the latticial counterparts of CS modules (for Closed are Summands). Applications of these results are given to Grothendieck categories and module categories equipped with a torsion theory.

Aral Ali

Title: ON QUANTIATIVE VORONOVSKAYA TYPE THEOREMS

Abstract. In this speech we give quantiative Voronovskaya type results for the derivative of general linear positive operators using different type weighted modulus of continuity.

Arikan Talha

Title: Evaluating Some Hessenberg Determinants via Generating Functions

Abstract. In this work, we will use generating function method to determine the relationships between determinant of a class of Hessenberg matrices whose entries are consist of terms of certain number sequences, and, their generating functions. Moreover we will define two new classes of Hessenberg matrices whose determinants have not been computed before. Finally, we give an elegant method to compute determinants of Hessenberg matrices whose entries are consist of terms of general linear recursive sequences.

Baboş Alina

Title: INTERPOLATION OPERATORS ON A SQUARE WITH ONE CURVED SIDE

Abstract. We construct some Lagrange, Hermite and Birkhoff-type operators, which interpolate a given function and some of its derivatives on the border of a square with one curved side. We also consider their product and Boolean sum operators. We study the interpolation properties and the degree of exactness of the constructed operators.

Başcanbaz-Tunca Gülen, Erençin Ayşegül and Taşdelen Fatma

Title: SOME PROPERTIES OF BERNSTEIN TYPE CHENEY AND SHARMA OPERATORS

Abstract. In this talk, we show that Bernstein type Cheney and Sharma operators preserve modulus of continuity and Lipschitz continuity properties of the attached function f . We also give a result for these operators when f is aconvex function.

Bucur Beatrice Daniela

Title: INTERPRETING MODAL LOGICS USING LABELED GRAPHS

Abstract. Modal logic is an extension of the logic of predicates and propositions which includes operators that express modality. In modal logic we deal with truth and falsehood in different possible worlds, as well as in the real world. In this paper we construct a labeled graph associated to a transition system, as a starting point in analyzing modal logics. We define the concepts of inclusion, isomorphism, "modal equivalence" and equivalence between graphs.

Ciobotariu-Boer Vlad

Title: SOME NEW INTEGRAL INEQUALITIES FOR TWICE DIFFERENTIABLE FUNCTIONS

Abstract. We establish some new general integral inequalities for twice differentiable functions. Then we apply these inequalities for special means of real numbers and new general quadrature rules of trapezoidal type.

Deo Naokant

Title: MODIFIED DURRMEYER OPERATORS BASED ON INVERSE PÓLYA-EGGENBERGER DISTRIBUTION

Abstract. In this contribution we consider modified Durrmeyer operators associated to inverse Pólya-Eggenberger distribution. First, we give the moments of our operators and then study approximation properties of these operators which include uniform convergence and degree of approximation.

Gheorghiu Calin-Ioan

Title: TWO DISTINCT WAYS TO INTRODUCE THE CHEBYSHEV POLYNOMIALS

Abstract. We comment on an elementary but fairly constructive way to introduce the classical Chebyshev polynomials due to Tiberiu Popoviciu (On the Best Approximation of Continuous Functions by Polynomials. Five lessons held at the Faculty of Science from Cluj during the academic year 1933-1934). Accordingly, the most important properties of these polynomials are obtained. Then we compare this strategy with the well known one which considers Chebyshev polynomials as solutions of a singular Sturm-Liouville eigenvalue problem.

Gavrea Bogdan

Title: STOCHASTIC COMPLEMENTARITY PROBLEMS FOR A CLASS OF RIGID BODY SYSTEMS

Abstract. We consider a class of rigid body systems in a quasi-static setting. The goal is to plan and control such systems in the presence of uncertainties that are due to model formulation, parameter estimation or inexact measurements. The rigid body system is modeled using complementarity problems, which by adding the uncertainty element give rise to stochastic complementarity problems. In this talk, both theoretical and numerical issues will be addressed.

Ghisa Dorin

Title: PARTIAL EULER PRODUCTS AND THE GREAT RIEMANN HYPOTHESIS

Abstract. We are studying general Dirichlet series having the abscissa of convergence less than $1/2$ and which can be continued analytically to the whole complex plane. When the conformal mappings of the corresponding fundamental domains can be

approximated by partial Euler products, then the non trivial zeros of the respective functions have all the real part $1/2$.

Gîrjoabă Adrian

Title: ELLIPTIC CURVES ARISING FROM AN ELEMENTARY PROBLEM

Abstract. Starting from a problem regarding the Euler lines of some variable triangles we get to a family of elliptic curves. This tells us that the solution can't come from synthetic geometry. An analytical solution is presented, the computations being made with the aid of MAPLE.

Güngör Şule Yüksel and Ispir Nurhayat

Title: SHAPE PRESERVING PROPERTIES OF GENERALIZED SZÁSZ OPERATORS OF MAX-PRODUCT KIND

Abstract. In this study, we present the nonlinear generalized Szász operators of max-product kind and we give a better error estimate for the large subclasses of functions. Also we study some shape preserving properties of concerned operators.

Gupta Vijay

Title: SOME PROBLEMS IN APPROXIMATION BY LINEAR POSITIVE OPERATORS

Abstract. The study of convergence behaviour of positive linear operators (p.l.o) is an active area of research amongst researchers in last few decades. Several new operators were introduced and their approximation properties were discussed. In the present talk we discuss some of the problems concerning convergence of p.l.o. which mentions about direct estimates in ordinary and simultaneous approximation. Also, we discuss about different methods to get

better order of approximation, some new operators and generalization to q extensions and study in complex domain.

Haidas Dimitrios, Acu Ana Maria, Mastorakis Nikos, Kechgias John

Title: THE INFLUENCE OF FUSED PLA TEMPERATURE ON TO THE FFF PROCESS PERFORMANCE

Abstract. This work presents the influence of the fused Polylactic Acid (PLA) plastic material on to the fused filament fabrication (FFF) process performance. FFF is a process that produces 3D Printed physical models addively-layer by layer. FFF processes is also know as low cost 3D Printing.

Ionescu Adela

Title: OPTIMAL CONTROL OF A STOCHASTIC VERSION FOR THE LOTKA-VOLTERRA MODEL

Abstract. We study a controlled dynamical system that reduces to the Lotka-Volterra model of competition between two species if the control variable is taken identically equal to 1. Next, a transformation is used to simplify the dynamical system, and a stochastic version of this transformed system is considered. The aim is to maximize the time that the ratio of the number of individuals of each species remains between two acceptable limits, taking the quadratic control costs into account. An explicit solution is found by solving the partial differential equation satisfied by the value function.

Ivan Mircea and Gavrea Ioan

Title: SOME ASYMPTOTIC EXPANSIONS OF A SEQUENCE OF KELLER

Abstract. We extend some known asymptotic expansions of a sequence attributed to Keller.

Kara Yeliz and Tercan Adnan

Title: p -EXTENDING MODULES WITH ABELIAN ENDOMORPHISM RINGS

Abstract. A module M is called p -extending if every projection invariant submodule of M is essential in a direct summand of M . We focus our attention on p -extending modules to show that under some module theoretical conditions on this class of modules with Abelian endomorphism rings have indecomposable decompositions.

Karsli Harun

Title: APPROXIMATION PROBLEM FOR CERTAIN LINEAR POSITIVE OPERATORS THAT APPROXIMATE THE URYSOHN TYPE OPERATOR

Abstract. The goal of this study is generalization and extension of the theory of interpolation of functions to functionals and operators. We investigate the convergence problem for linear positive operators that approximate the Urysohn type operator in some functional spaces. One of the main difference between the present work and convergence to a function lies in the use of the Urysohn type operator values instead of the sampling values of a function. From the definitions of the Urysohn type operators, Heaviside and Dirac Delta function, the current study can be also consider as convergence of a kind of nonlinear form of the classical linear positive operators to a function.

Khan Khalid

Title: BEZIER CURVES BASED ON LUPAŞ (p, q) -ANALOGUE OF BERNSTEIN POLYNOMIALS IN CAGD

Abstract. In this paper, we use the blending functions of Lupaş type (rational) (p, q) -Bernstein operators based on (p, q) -integers

for construction of Lupaş (p, q) -Bézier curves (rational curves) and surfaces (rational surfaces) with shape parameters. We study the nature of degree elevation and degree reduction for Lupaş (p, q) -Bézier Bernstein functions. Parametric curves are represented using Lupaş (p, q) -Bernstein basis.

We introduce affine de Casteljau algorithm for Lupaş type (p, q) -Bernstein Bézier curves. The new curves have some properties similar to q -Bézier curves. Moreover, we construct the corresponding tensor product surfaces over the rectangular domain $(u, v) \in [0, 1] \times [0, 1]$ depending on four parameters. We also study the de Casteljau algorithm and degree evaluation properties of the surfaces for these generalization over the rectangular domain. Furthermore, some fundamental properties for Lupaş type (p, q) -Bernstein Bézier curves and surfaces are discussed. We get q -Bézier surfaces for $(u, v) \in [0, 1] \times [0, 1]$ when we set the parameter $p_1 = p_2 = 1$. In comparison to q -Bézier curves and surfaces based on Phillips q -Bernstein polynomials, our generalization gives us more flexibility in controlling the shapes of curves and surfaces.

Kizilaslan Gonca

Title: MATRIX REPRESENTATION OF SOME BINOMIAL IDENTITIES

Abstract. We present a new perspective to the matrix representation and show that the sums of the some binomial sequences could be evaluated directly using this representation.

Koparal Sibel

Title: SOME CONGRUENCES WITH BALANCING AND LUCAS-BALANCING NUMBERS

Abstract. In this study, we present new congruences involving balancing and Lucas-balancing numbers. We give the following

some congruences: for an odd prime p ,

$$\sum_{k=1}^{p-1} H_k B_k \equiv \frac{1}{4p} (B_p - B_{p-1} - 2^p P_{p-1} - 1) \pmod{p},$$

$$\sum_{k=1}^{p-1} k H_k C_k \equiv -\frac{1}{4p} (C_p + p C_{p-1} - 2^{p-1} Q_p - p - 1) \pmod{p},$$

and

$$\sum_{k=1}^{(p-1)/2} \binom{2k}{k} k B_k \frac{3^k}{2^k} \equiv -3 \left(\frac{-1}{p} \right) B_{p-2} \pmod{p},$$

where H_n is harmonic numbers, B_n and C_n are balancing and Lucas-balancing numbers, P_n and Q_n are Pell and Pell-Lucas numbers, respectively, $\left(\frac{\cdot}{p} \right)$ denotes the Legendre symbol.

References

- [1] A. Granville, *The square of the Fermat quotient*, Proc. Amer. Math. Soc. 140, (2012), 415-428.
- [2] G.K. Panda and P.K.Ray, *Some links of balancing and cobalancing numbers with Pell and associated Pell numbers*, Bull. Inst. Math. Acad. Sin. (N.S) 6(1), (2011), 41-72.
- [3] N. Ömür and S. Koparal, *On congruences with terms of the second order sequences $\{U_{kn}\}$ and $\{V_{kn}\}$* , under review.
- [4] Z.W.Sun, *On harmonic numbers and Lucas sequences*, Pub. Math. Debrecen 8081-2, (2012), 25-41.

Lopez Moreno Antonio Jesus

Title: TAYLOR-DURRMEYER TYPE OPERATORS

Abstract. We present a sequence of linear positive operators of mixed Taylor-Durrmeyer type. We study several approximation properties of these operators.

Luca Traian Ionuț

Title: BI-CRITERIA PROBLEMS FOR ENERGY OPTIMIZATION

Abstract. In this material we consider a new approach for energy optimization based on bi-criteria problems. Similar method was successfully developed for portfolio theory. We managed to extend and improve it. Due to optimization for energy production which has an important impact on greenhouse gases, our models bring some contributions to General Climate Models.

Manav Nesibe and Ispir Nurhayat

Title: APPROXIMATION BY BLENDING TYPE OPERATORS BASE ON LUPAŞ-SZÁSZ FUNCTIONS

Abstract. In this study, a certain bivariate summation integral type operators based on Lupaş-Szász functions are introduced and investigated the degree of approximation. In terms of partial and total modulus of continuous and K-functional. Furthermore, the operators extended to Bögel continuous functions by the means of Generalized Boolean Approach.

Minculete Nicuşor

Title: A NOTE ON TWO INEQUALITIES WITH THE CONVEX FUNCTIONS

Abstract. In this note we present two inequalities with the convex functions which improves Young's inequality. Also we obtain several applications of these inequalities.

Mirea Mihaela Mioara and Ivanescu Ionuț

Title: EXTENSIONS OF INEQUALITIES

Abstract. We discuss the extension of Jensen's inequality on the right in n-dimensional space. Jensen's inequality is an important

tool in convex analysis, revealing an essential feature of continuous convex functions.

Neer Trapti, Acu Ana Maria and Agrawal Purshottam

Title: DEGREE OF APPROXIMATION BY CHLODOWSKY VARIANT OF JAKIMOVSKI-LEVIATAN-DURRMEYER TYPE OPERATORS

Abstract. In this paper we introduce the Chlodowsky variant of the Durrmeyer-type Jakimovsky Leviatan operators. We give the rate of approximation in terms of first order modulus of continuity and the Ditzian-Totik modulus of smoothness. Also we introduce a Voronovskaja-type asymptotic formula. In the last section we give some approximation results for a weighted space.

Ömür Neşe

Title: ON THE MATRICES WITH THE GENERALIZED HYPERHARMONIC NUMBERS OF ORDER r

Abstract. In this paper, we define two nn matrices A_n and B_n with $a_{i,j} = H_{i,j}^r$ and $b_{i,j} = H_{i,m}^j$, respectively, where $H_{n,m}^r$ are a generalized of hyperharmonic numbers of order r . We give some new factorizations and determinants of the matrices A_n and B_n .

Oprış Adonia-Augustina

Title: A CLASS OF ACZEL-POPOVICIU TYPE INEQUALITY

Abstract. In this paper we give new generalized and sharpend version of Aczel-Popoviciu inequality via positive and homogeneous functionals.

Özhavzali Müzeyyen and Aydin Ayhan

Title: A COMPARISON FOR SOME LINEAR POSITIVE OPERATORS BY CALCULATING THE ERRORS IN THE APPROXIMATION

Abstract. In this paper, we give a Korovkin-type approximation theorem for sequences of positive linear operators on the space of all continuous real valued functions defined on $[a,b]$. We also give convergence and approximation properties of a Chlodowsky type generalization of Stancu polynomials called Stancu-Chlodowsky polynomials. We made a comparison between the approximations obtained by the generalized Bernstein operator and the Stancu-Chlodowsky polynomials by calculating the errors in the approximations. Figures and numerical results verify the theoretical results.

Özden Dilek

Title: ON UNIFORM APPROXIMATION BY MODIFIED q -BLEIMANN, BUTZER AND HAHN OPERATORS

Abstract. In this work, we consider a generalization of the sequences of q -Bleimann, Butzer and Hahn operators, which are based on a function ρ . We study uniform approximation of such a sequence. We also obtain degree of approximation. Further, we investigate monotonicity properties of the sequence of operators.

Pandey Shikha

Title: APPROXIMATION PROPERTIES OF CHLODOWSKY VARIANT OF (p, q) BERNSTEIN-STANCU-SCHURER OPERATORS

Abstract. In the present paper, we introduce the Chlodowsky variant of (p, q) Bernstein-Stancu-Schurer operators which is a generalization of (p, q) Bernstein-Stancu-Schurer operators. We have also discussed its Korovkin type approximation properties and rate of convergence.

Păltănea Radu and Talpău Dimitriu Maria

Title: MODULI OF CONTINUITY AND RELATED K-FUNCTIONALS

Abstract. We obtain equivalence theorems between certain moduli of continuity and K-functionals.

Popa C. Emil

Title: ON A CONDITIONAL INEQUALITY

Abstract. In this paper we present some considerations on a conditional inequality.

Pop Emilia Loredana

Title: SCALAR AND VECTOR OPTIMIZATION

Abstract. Considering an optimization problem, the first approximated optimization problem and the dual optimization problem are attached to it and the connections between the optimal solutions and saddle points of these problems are studied. In the vector case for the optimization problem and the first approximated optimization problem are studied the connections between the efficient solutions and saddle point for the Lagrangian of these two problems.

Radu Voichița, Muraru Carmen and Sofonea Florin

Title: SOME APPROXIMATION PROPERTIES OF A DURRMEYER VARIANT OF Q-BERNSTEIN-SCHURER OPERATORS

Abstract. Our goal is to present approximation theorems for a Durrmeyer variant of q-Bernstein-Schurer operators defined by C.V. Muraru and modified by M.Y. Ren and X.M. Zeng. C.V. Muraru

and A.M. Acu studied the Durrmeyer variant of the original q -Bernstein-Schurer using uniform convergence. Our choice is to use both the uniform convergence and the statistical convergence to establish some approximation theorems for a Durrmeyer variant of the modified q -Bernstein-Schurer operators.

Rațiu Augusta

Title: A REFINEMENT OF GRUSS INEQUALITY

Abstract. In this paper, we study the discrete version of Grüss inequality, in the context of elements of statistics, using the concepts of variance and covariance for the random variables, obtaining a new refinement of this inequality.

Razzaghi Mohsen

Title: AN EFFICIENT TECHNIQUE FOR THE SOLUTION OF FRACTIONAL ORDINARY DIFFERENTIAL EQUATIONS

Abstract. Fractional differential equations (FDEs) are generalizations of ordinary differential equations to an arbitrary (noninteger) order. FDEs have attracted considerable interest because of their ability to model complex phenomena. Due to the extensive applications of FDEs in engineering and science, research in this area has grown significantly all around the world. Generally speaking, most of the FDEs do not have exact analytic solutions. Therefore, seeking numerical solutions of these equations is becoming more and more important. In this talk, an introduction to FDEs is given first. Then, an efficient numerical method for solving the initial and boundary-value problems for FDEs is presented. The method is based upon the fractional Taylor series approximations. The operational matrix for the fractional Taylor series is given. This matrix is then utilized to reduce the solution of the FDEs to a system of algebraic equations. We also consider a specific equation known as Baglet-Torvik fractional differential equation. This equation has an

outstanding role in the modeling of several engineering problems. The method is computationally very attractive and gives very accurate results. The numerical solutions are compared with available exact or approximate solutions in order to assess the accuracy of the proposed method.

Tachev Gancho

Title: VORONOVSKAJAS THEOREM FOR FUNCTIONS WITH EXPONENTIAL GROWTH

Abstract. In the present talk we establish general form of Voronovskaja's theorem for functions defined on unbounded interval and having exponential growth. The case of approximation by linear combinations is also considered. Applications are given for some Szász-Mirakyan and Baskakov-type operators. This talk is based on joint research with Prof. Vijay Gupta.

Țincu Ioan

Title: ON A MARKOV METHOD

Abstract. This paper contains a new approach a transformed Markov method.

Vălcan Teodor Dumitru

Title: ABOUT A CATEGORY OF ABELIAN GROUPS

Abstract. We say that an R -module (abelian group) M has the direct summand intersection property (in short D.S.I.P.) if the intersection of any two direct summands of M is again a direct summand in M . In this work we will present three classes of abelian groups (torsion, divisible, respectively torsion-free) which have the property that any proper subgroup has D.S.I.P. and we are going to show that there are not such mixed groups.

Zapryanova Teodora

Title: ON THE ITERATES OF CONTINUOUS LINEAR OPERATORS PRESERVING CONSTANTS AND JACKSON TYPE OPERATORS $G_{s,n}$

Abstract. In this paper we study the limit of the iterates of a large class of linear bounded operators preserving constants. We obtain in addition the limit of the iterates of algebraic version of the trigonometric Jackson integrals. The proofs are based on spectral theory of linear operators.

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