CONTENTS

1. FOREWORD xiv
2. COMMITTEES xv
3. SESSIONS xviii
4. ACKNOWLEDGMENTS xix
5. PLENARY SPEAKERS 1
   σ-Convergence and a New Sequence Space of Order α 2
   Ekrem Savas

Mathematical Beauty in Black Hole Radiation 3
   İzzet Sakallı

Simulation: It’s the Name of the Game 4
   Jane Horgan, Charlie Daly, James Power

Variations of the ccc Property 5
   Ljubiša D.R. Kočinac

Exponential Stability for the Nonlinear Schrödinger Equation with Locally Distributed Damping 6
   Marcelo M. Cavalcanti, Wellington J. Corrêa, Turker Özsarı, Mauricio Sepúlveda, Rodrigo Véjar Asem

Spectral Disjointness and Invariant Subspaces 7
   Robin Harte

6. ABSTRACTS 8

6.1 Topology 9

Neutrosophic Soft δ-Topology and Neutrosophic Soft Compactness 10
   Ahu Acikgoz, Ferhat Esenbel

Neutrosophic Soft Pre-Separation Axioms 11
   Ahu Acikgoz, Ferhat Esenbel

Neutrosophic Soft Semiregularization Topologies and Neutrosophic Soft Submaximal Spaces 12
   Ahu Acikgoz, Ferhat Esenbel

Domination in Discrete Topology Graphs 13
   Ali Ameer Jabor, Ahmed Abd-Ali Omran
On Intuitionistic Fuzzy Cone Symmetric Spaces  
Banu Pazar Varol  

On A Uniform Analogue of Paracompact Spaces  
Bekbolot Kanetov, Anara Baidzhuranova  

Some Properties of Remainders of Uniform Spaces and Uniformly Continuous Mappings  
Bekbolot Kanetov, Ulubek Saktanov, Dinara Kanetova  

On Some Properties of Completeness of Uniform Spaces  
Bekbolot Kanetov, Dinara Kanetova, Meerim Zhanakunova  

Notes on Free Topological Groups  
Chuan Liu  

On Mean Intuitionistic Open Sets  
Esra Dalan Yildirim  

Some Generalizations of Caristi Type Fixed Point Theorem on $M$-Metric Spaces  
Hakan Sahin, Ishak Altun, Duran Turkoglu  

Topological Aspect of Monodromy Groupoid for a Topological Internal Groupoid  
Hurmet Fulya Akz, Osman Mucuk  

On Strong Pre-Continuity with Fuzzy Soft Sets  
Huseyin Cakalli, Ahu Acikgoz, Ferhat Esenbel  

Direct Sum of Barreled Locally Convex Cones  
Mohammad Reza Motallebi  

Crossed Module Aspects of Monodromy Groupoids for Internal Groupoids  
Osman Mucuk, Serap Demir, Tunce Sarhan  

A Condition for Points and Compact Subsets of $C(X)$ to be $G_δ$ Subsets of $\mathbb{R}^X$  
Smail Kelataia  

G– Fuzzy Sequential Continuity in FTS  
Taja Yaying, Ahu Acikgoz, Huseyin Cakalli  

$m^*\cdot$-$\rho$-Closed Sets in Minimal Spaces $(X, m)$ with Hereditary Hlasses due to Császár  
Takashi Noiri, Ahu Acikgoz  

The Shortest Length Distance and the Digital $r$-Thickening on Digital Images  
Tane Vergili  

On Measures of Parameterized Fuzzy Compactness  
Vildan Çetkin  

Chain Connectedness  
Zoran Misajleski, Nikita Shekutkovski, Emin Durmishi  

6.2 Analysis and Functional Analysis  

Reduced Approximation for Operator with Time in Parabolic Problems Case  
Ali Berkane, Mohamed Belhout
Stabilization of the Wave Equation with a Localized Memory Term and Border Friction Dissipation
Aries Mohammed Es-Salah
33

Statistical Quasi Cauchy Sequences in Abstract Metric Spaces
Ayse Sonmez and Huseyin Cakalli
34

Existence Results of First-Order Differential Systems with Mixed Quasimonotone Nonlinearities and Integral Boundary Condition
Bachir Messirdi, Mohammed Derhab, Tewfik Khedim
35

Steklov Eigenvalue Problem with $\alpha$-Harmonic Solutions
Belhadj Karim
36

Second Order Sweeping Process with Almost Convex Perturbation
Doria Affane, Mustapha Fateh Yarou
37

Singular Degenerate Normal Differential Operators for First-Order
Fatih Yilmaz, Meltcm Sertbas
38

Existence of Solutions for Delay Dynamic Equations on Time Scales
Faycal Bouchelagham, Abdelouahed Ardjouni, Ahcene Djoudi
39

Optimization of Second Order Evolution Differential Inclusions Problem with Phase Constraints
Gulseren Cicek, Elmhan Mahmudov
40

Global Behavior of some Difference Equations
Hamdy A. El-Metwally, M. AL-kaff
41

Norm and Almost Everywhere Convergence of Convolution Powers
Heybetkulu Mustafayev
42

An Extreme Point Theorem
Hulya Duru
43

Nonlocal Elliptics Problems with Hardy Potential Term
Kheireddine Biroud
44

Some Estimates in Homogeneous Function Spaces
Madani Moussai
45

Weighted Stepanov Pseudo Almost Periodic Functions on Time Scales
Mohamed Zitane, Mohsine Es-saiydy
46

On a Study of New Class of $q$-Fractional Operator
Mohammad Momenzadeh
47

An Inequality for Self Reciprocal Polynomials
Mohammed A. Qazi
48

On Property $(UW_2)$ under Functional Calculus
Mohammed Kachad
49

Pseudo Almost Periodic Generalized Functions
Mohammed Taha Khalili
50
Global Existence and Uniqueness of Solutions to a Parabolic Haptotaxis Model  
Naima Aissa, Hocine Tsmada  
51

On the $\Delta_3$-Statistical Convergence of the Function Defined Time Scale  
Nihan Turan, Metin Başarır  
52

A Minimization Algorithm for Limit Extremal Problems on Convex Compactum  
Özkan Değer  
53

First Order Maximally Dissipative Singular Differential Operators  
Pembe İpek Al, Zameddin I. Ismailov  
54

Schatten-von Neumann Characteristic of Tensor Product Operators  
Pembe İpek Al, Zameddin I. Ismailov  
55

Some Properties of Solutions to Dynamical Systems  
Serkan İltel  
56

Sufficient Conditions of Optimality for Free Time Optimization of Third Order Differential Inclusions  
Seyrulay Demir Sağlam, Elinhan N. Mahmudov  
57

Shechter Spectra and Relatively Demicompact Linear Relations  
Slim Fakhfakh  
58

Rate of Convergence by Phillips Operators Involving Appell Polynomials  
Şule Yüksek Güngör, Nurhayat Ispir  
59

On the Rigidity Part of Schwarz Lemma at the Boundary  
Tuğba Akşel, Bülent Nați Ornek  
60

The Transmission Problem for the Laplace Operator on a Domain with a Cuspidal Point  
Wided Chikouche  
61

6.3 Sequences, Series, Summability  
62

On a Summation by the Abel Method of a System of Root Functions for a Nonlocal Problem with Integral Conditions  
Abdelhak Berkane  
63

On Rough Convergence of Triple Sequences  
Ayhan Esti, Nagarajan Subramanian, M. Kemal Özdemir  
64

Triple Sequence Spaces of Intuitionistic Rough $I$-Convergence Defined by Compact Bernstein Operator  
Ayhan Esti, Nagarajan Subramanian, M. Kemal Özdemir  
65

Necessary and Sufficient Tauberian Conditions Under Which Convergence Follows from $A^\nu,\delta$ Summability  
Cagla Kambak, Ibrahim Canak  
66

Characterization of the Compact Operators on the Class $(bv, bv\gamma)$  
Fadime Gökçe, M. Ali Sarıgöl  
67

Certain Matrix Characterizations Related to the Difference Spaces  
Fadime Gökçe  
68
On Some Properties of a New Paranormed Space \(|C_{-1}|(p)|\) 69
G. Canan Hazar Güleç

Matrix operators Involving the Space \(bv_k^p\) 70
G. Canan Hazar Güleç, M. Ali Şargül

Some Tauberian Theorems for \((C,1,1)\) Summability Method by Regularly Generated Integrals 71
Gökşen Fındık, İbrahim Çanak

Logarithmic Summability of Integrals on \([1,\infty)\) 72
Gökşen Fındık, İbrahim Çanak

Lacunary \(A-\) Statistical Convergence and Lacunary Strong \(A-\) Convergence of Order \((\alpha, \beta)\) with Respect to a Modulus 73
Hacer Şengül, Mikail Et, Hüseyin Çakallı

Deferred Statistical Convergence of Order \(\alpha\) in Topological Groups 74
Hacer Şengül, Mikail Et, Hüseyin Çakallı

Lacunary \(d-\)Statistical Convergence and Lacunary \(d-\)Statistical Boundedness in Metric Spaces 75
Hacer Şengül, Mikail Et, Hüseyin Çakallı

Rho Statistical Convergence of Order Beta 76
Huseyin Çakallı, Hacer Şengül Kandemir

Abel Statistical Convergence in Metric Spaces 77
Huseyin Çakallı

Tauberian Theorems for the Weighted Mean Summability of Integrals on \([1,\infty)\) 78
İbrahim Çanak, Fırat Özşarac

Category Theoretical View of \(I\)-Cluster and \(I\)-Limit Points for Ideals \(I\) with the Baire Property 79
Leila Miller-Van Wieren, Tugba Yardıkmızım, Emre Tas

Deferred Statistical Convergence and Strongly Deferred Summable Functions 80
Mikail Et, P. Balarsingh, Hacer Şengül

Lacunary Statistical Convergence of Difference Sequences of Fractional Order 81
Nazım Deniz Aral, Mikail Et

Application on Local Properties of Factored Fourier Series 82
Şebnem Yıldız

A New Generalization on Absolute Riesz Summability 83
Şebnem Yıldız

Absolute Matrix Summability on Quasi Power Increasing Sequences 84
Şebnem Yıldız

Sufficient Tauberian Conditions for the \((\overline{N}, p)\) Summability of Sequences 85
Sefa Anıl Sezer, İbrahim Çanak

\(p\)-Ward Continuity in 2-Normed Spaces 86
Sibel Erşan
6.4 Fixed Point Theory

New Approach to Find Multi-Fractal Dimension of Multi-Fuzzy Fractal Attractor Sets Based on Iterated Function System
Arkam Jassim Mohammed

On the Study of Nonlinear Fractional Differential Equations on Unbounded Interval
Boulares Hamid

Chatterjea Type Fixed Point Results on Metric Spaces
Gonca Durmaz Gunog, Ishak Altun, Ali Cihad Kabaci

Fixed Point Results with $\theta$-Function on Quasi Metric Space
Gonca Durmaz Gunog, Ishak Altun

Common Fixed Points for Two Mappings
Hakima Bouhadjera

Complexity Analysis of Primal-Dual Interior Point Methods for Semidefinite Programming Based on a New Kernel Function with an Hyperbolic Barrier Term
Imene Touil, Wided Chikouche

Almost Picard Operators
Ishak Altun, Hatice Aslan Hancer

Nonconvex Second Order Sweeping Processes in Hilbert Spaces
Louisa Sabrina, Haddad Tahar

A Logarithmic Barrier Method for Linear Programming using a New Minorant Function
Menneche Linda, Benterki Djamel, Merkhi Bachir

Existence and Uniqueness of Solution for the Problem in the Times Scales
Mouhamed Nehari

Fixed Point Approach for Differential Inclusions Governed by Subdifferential Operators
Mustapha Fateh Yarou, Doria Affane

Some Fixed Point Results on Modular $F$-Metric Spaces
Nesrin Manav, Duran Turkoglu

Three-Step Projective Methods for Solving the Split Feasibility Problems
Nontawat Ekammiran, Nattawut Pholasa, Prasit Cholamjiak

A Fixed Point Approach for a Differential Inclusion Governed by the Subdifferential of PLN Functions
Nora Petouci, Mustapha Fateh Yarou

Fixed Point Theorems on Orthogonal Metric Spaces via Altering Distance Functions
Nurcan Bilgili Gunog, Duran Turkoglu

Fixed Point Theory on Spaces with Vector-Valued Metrics
Safia Bazine

Homoclinic and Heteroclinic Bifurcations for Henon Like Diffeomorphism
Selmani Wissame, Dyellit Ilhem
Convergence Theorems for Three G-Nonexpansive Mappings in Hilbert Spaces with Graphs by Modifying SP and Noor Iterations with Shrinking Projection Methods

Supitcha Pheetarakorn, Nattawut Pholasa, Watcharaporn Cholamjiak

Existence Results of First-Order Differential Equations without Integral Boundary Conditions at Resonance

Tewfik Khedim, Mohammed Derhab, Bachir Messirdi

6.5 Numerical Functional Analysis

Solvability of a Mixed Problem for a Heat Equation with an Involution Perturbation

Abdssalam Sarsenbi

Mixed Problem for a Wave Equation with an Involution Perturbation

Abdulhak Sarsenbi, Modina Utelbaeva

Numerical Analysis of the Influence of the Initial Parameters on the Convergence Rate of the Approximate Solution of the Boundary Value Problem

Aksylbek Kerimbekov, Aijana Ermekbaeva, Gulnaz Mombekova

A Crank Nicolson Difference Scheme for the System of Nonlinear Observing Epidemic Models

Ahmed Alyradyev, E. Hincal, B. Kaymakamzade

A Numerical Algorithm for the Source Identification Parabolic-Elliptic Problem

Allaberen Ashyraliev, Cagin Arikan

A Numerical Algorithm for the Source Identification Elliptic-Telegraph Problem

Allaberen Ashyraliev, Ahmad Al-Hammouri

A Numerical Algorithm for the Involutory Parabolic Problem

Allaberen Ashyraliev, Amer Mohammed Saeed Ahmed

Finite Difference Method for the Third-Order Partial Differential Equation with Nonlocal Boundary Conditions

Allaberen Ashyraliev, Kheireddine Belakroum

Time-Dependent Source Identification Problem for the Schrödinger Equation with Nonlocal Boundary Conditions

Allaberen Ashyraliev, Mesut Urun

A Numerical Algorithm for the Third Order Partial Differential Equation with Time Delay

A. Ashyraliev, E. Hincal, S. Ibrahim

A Numerical Algorithm for the Involutory Schrödinger Type Problem

A. Ashyraliev, Tawana Abbas

Numerical Solution of the System of Fractional Differential Equations Observing Epidemic Models

Allaberen Ashyraliev, B. Kaymakamzade, L.D. Hayder

Well-Posedness of Source Identification Problem for the Elliptic Equation in a Banach Space

Allaberen Ashyraliev, Charyyar Ashyraliev
On Elliptic Differential and Difference Problems in a Hilbert Space with Special Type Nonlocal Conditions
Allaberen Ashyralyev, Ayman Hamad

Optimal Control Approach to Study Two Strain Malaria Model
Bashir Abdullahi Baba, Parvaneh Esmaeili, Isa Abdullahi Baba

On a Boundary Problem for a Nonlocal Poisson Equation with Boundary Operators of the Hadamard Type
Batirkhan Turemetov, Rakhim Shaismiev

On the Numerical Analysis of a Nonlinear Fractional Schrödinger Equation with Neumann Boundary Condition
Betul Hicdurmaz

An Iterative Regularization Method for an Ill-Posed Bi-Fractional Problem
Boussitila Nadji, Sassane Roumaissa, Rebbani Faouzia

Numerical Solution of Neumann Type Elliptic Overdetermined Multipoint Mixed Boundary Value Problem
Charyyar Ashyralyev, Suzan Karabey

A New Coupling Method for the Stokes-Darcy Model
C. Ziti, R. Malek

Sinc Approximation of Solution of Integro-Differential Equation
Douinia Belakroum, Khievreddine Belakroum

Differential and Difference Variants of 2-d Nonlocal Boundary Value Problem with Poisson’s Operator
Duslet M. Dusletov

Posterior Analysis of Weighted Erlang Distribution
E. Hincal, Sultan Alsaadi

Memory Efficient Algorithm for Solving the Inverse Gravimetry Problem of Finding Several Boundary Surfaces in Multilayered Medium
Elena N. Akimova, Vladimir E. Misilov, Murat A. Sultanov, Rauan Zh. Turebekov

Numerical Analysis of Convergence Rate of Approximation Solutions of a Boundary Value Problem for Oscillation Processes
Elmira Abdyldaeva, Zaraia Kabaeva, Kubat Karabakirov

Solving Nonlinear Volterra-Fredholm Integro-Differential Equations Using He’s Variational Iteration Method
Fernane Khaireddine, Ellaggoune Selma

The Effect of Harvesting Policy on an Eco-Epidemiological model
Karrar Q. AL-Jabori, Reem M. Hussien, Nadia M.G. Alsasi

Interpolation of Scattered Data in $\mathbb{R}^3$ Using Minimum $L_p$-Norm Networks, $1 < p < \infty$
Krasimir Vlachkova

On Unique Solvability of Nonlinear Coupled Systems
Meltem Uzun, Ozgur Yildirim
Construction of Unconditionally Stable Difference Schemes Based on Stability of Perturbed Difference Scheme
  Murat A. Sultanov, Musabek I. Akylbaev

An Inverse Diffusion-Wave Problem Defined in Heterogeneous Medium with Additional Boundary Measurement
  Nouiri Brahim, Djerioui Khayra

Symmetry Analysis of the Discrete Nonlinear Boundary Value Problems for the Wave Equation
  Sumeysa Caglak, Ozgur Yildirim

6.6 Computer Science and Technology

A New Pseudo Random Bits Generator via 2D chaotic System, Diffusion, and Permeation
  Alaa kadhim Farhan, Abeer Tariq, Rasha S.Ali, Nadia M.G. Alsaidi

Diffuse Representation of Image and Its Applications to Cryptography and Compression
  Amrane Houas, Zouhair Mokhtar

Comparison of C, Java, Ruby and Matlab Programming Languages Using Fibonacci Algorithm
  Ceren Cubukcu, Zeynep Behrin Guven Aydin, Ruya Samli

Image encryption based on highly sensitive chaotic system
  Dalaa S. Ali, Nawras A. Alwan, Nadia M.G. Alsaidi

Review of the Most Popular Data Science Programs Used Today: Python and R
  Ender Sahinaslan

A Study on the Industrial Usage Areas of Modern Information Technologies
  Ender Sahinaslan, Onder Sahinaslan

Market Basket Analysis Developed On The Refrigerator Control System With Machine Learning Algorithms In Data Mining Applications
  Engin Oyusay

Sentiment Analysis of Turkish Twitter Data
  Harisu Abdullahi Shehu, Sezai Tokat, Md. Haidar Sharif, Sahin Uyaver

Motion Estimation from Noisy Image Sequences using New Frequency Weighting Functions
  Ismaili Alaoui El Mehdi

A Modification of Gravitational Search Algorithm with Hyper-Ellipsoids
  Iclal G"or, Korhan G"unel

Controlling Electrical Appliance by Thinking in Mind
  Md. Haidar Sharif, Sahin Uyaver

Development of an Information System for Storing Digitized Works of the Almaty Academgorodok Research Institutes
  Nurlan Temirbekov, Dossan Baigereyev, Almas Temirbekov, Bakytzhan Omirzhanova

Encryption Algorithms in Blockchain Technology
  Onder Sahinaslan
Darboux integrability and algebraic invariants of an enzymatic diffusion-reaction system
Orhan Özgür Aybar

Weak stabilization of a fractional output for a class of semi-linear Dynamical Systems
R. Larrissi, H. Zitane, A. Boutoulout

Fusion of Finger-Knuckle-Print and Finger Vein Recognition using Random Forest Tree
Rachid Chelouha, Abdallah Meraoumia

Extracting a New Fractal and Semi-Variance Attributes for Texture Images Categorization
Suhad A. Yousif, Hussam Y. Abdul-Wahed, Nadia M.G. Al-Saidi

A Block-Based Image Encryption Scheme Using Cellular Automata With Authentication Capability
Ziba Eslami, Saeideh Kabirrad

6.7 Mathematical Methods in Physics

Two Dimensional Free Surface Flows Past an Obstacle
Abdelkader Gasmi

Analytical Solution for the Conformable Fractional Telegraph Equation by Fourier Method
Abdelkebir Saad, Noutri Brahmi

Small Divisors in the Solar System
Angel Zhivkov

Laguerre Polynomial Approach for Solving Functional Differential Equations Involving First Order Nonlinear Delay Terms
Burcu Gürbüz, Mehmet Seraşer

Laguerre Matrix-Collocation Technique to Solve Systems of Functional Differential Equations with Variable Delays
Burcu Gürbüz

Secure Optical Communication Based on New 2D-Hyperchaotic Map
Dhurgham Younis, Nadia M.G. Alsaidi, Walid K.Hamoudi

The Explicit Relation Between the DKP Equation and the Klein-Gordon Equation
Djahida Boucheifa, Badredine Boudjedaa

Soliton Solutions of Gursey Model with Bichromatic Force
Eren Tosyalı, Fatma Aydoğanmuş

MHD Micropolar Blood Flow Model through a Multiple Stenosed Artery
Esam A. Ahsussairy, Ahmed Bakheet

Total Reduction of Chiral Oscillator and Its Dirac Analysis
Filiz Çağatay Uçgun

Thin-Shell Wormhole in \( f(R) \) Gravity
S. Habib Masharinosavai

Mathematical Beauty in Black Hole Radiation
İzzet Sakalh
Solving Advection Equation Using the Natural Decomposition Method 172
Jeerawan Saelao, Khanittha Kamdee

Merve Yücel, Oktay Mukhtarov

Mathematical Behaviour of Solutions of the Kirchhoff Type Equation with Logarithmic Non-linearity 174
Nazlı Ilkel, Erhan Pişkin

Modeling and Analysis the Effect of Social Media for a Zika Virus Transmission with Beddington DeAngelis Incidence Rate 175
Puji Andayani

Non-Commutative Geometry and Application to Schrödinger Equation with Certain Central Potentials 176
Zaiem Slimane

6.8 Recent Themes on Controllability and Stability of PDE’s 177

Controllability Results of Hilfer Fractional Differential Inclusions with Non-Dense Domain in Abstract Space 178
Assia Bouajjira, Djamila Seba, Karima Laoubi

A Note on Dirichlet Problem for Partial Differential Equations with Complex Variables in the Bidisc 179
Bahriye Karaca

On the Stabilization of Infinite Dimensional Bilinear Systems 180
El Hassan Zerrik, Abderrahman Ait Aadi

A Mixed Relaxed-Singular Optimal Controls for Systems of Forward-Backward Stochastic Differential Equations of Mean-Field Type 181
Gherbal Boulakhra, Nisouh Abdelhakim

Stability Result for an Abstract Delayed Evolution Equation with Arbitrary Decay in Viscoelasticity 182
Houria Chellaoua, Yamna Boukhatem

Hopf-Like Bifurcation and Mixed Mode Oscillation in a Fractional-Order FitzHugh-Nagumo Model 183
Mohammed Salah Abdelouahab, René Lozi

6.9 Applied Statistics 184

Regularization Schemes for Statistical Inverse Problems 185
Abhishek Rastogi

Forecasting ATM Transactions 186
Ayşe Cilacı Tombuç, Erdal Albayrak

Improved New Liu-Type Estimator for Poisson Regression Models 187
Esra Ertan, İsmail Müfit Giresunlu, Kadri Ulaş Akay
Generalized First Passage Time Method for the Estimation of the Parameters of the Stochastic Differential Equation of the Black-Scholes Model
Khalidi Khaled, Meddahi Samia

Comparison of ARIMA, Holt-Winters, and LSTM Forecasting Models Using Kullback Information Measure
Luckshay Batra, H.C. Taneja

On the Fuzzy Reliability Estimation for Lomax Distribution
Nadia Hashim Al-Noor

On the Exponentiated Weibull Distribution
Nadia Hashim Al-Noor, Salah Hamza Abid, Mohammad Abd Alhussein Boshi

2D Markov-Switching Autoregressive (MS AR) Models for Image Segmentation
Soumia Kharfouchi, Houria Djafri

Entropy as a Measure of Implied Volatility in Options Market
H.C. Taneja, Luckshay Batra

Using Copulas to Model Dependence Between Crude Oil Prices
Vadoud Najjari

6.10 Geometry and Mathematical Education

Perfect Fluid Pseudo Concircular Ricci Symmetric Spacetimes with Codazzi Type Z-Tensor
Ayse Yavuz Tasci, Fusun Ozen Zengin

On Ruled Surfaces of Natural Lift Curves and Tangent Bundle of Pseudo-Sphere
Emel Karaca, Mustafa Çalışkan

On Infinitesimal Transformations Of Weyl Manifolds
İhan GÜl

Minimum Distance Between two Ellipses
Ivaylo Toutchev

Some Properties of Generalized Complex Space Forms
Pegah Mutlu

Pointwise Slant Semi-Riemannian Submersions from Lorentzian Para-Sasakian Manifolds
Sahar Mashmouli, Morteza Faghfouri

Geometrical View on Set-Theoretical Solutions of Yang-Baxter Equation via Lie Algebras
Serife Nur Bozdağ, İbrahim Sentürk

6.11 Algebra and Number Theory

On the Aggregating of Some Fuzzy Relations and their Related Structures
Abdelaziz Amroune, Aissa Bouad

An Abstract Characterization of Menger Algebras of Strongly Quasi-Open Multiplace Maps
Firudin Muradov

New Types of Uninorms on Bounded Lattices
Gül Deniz Çalışık
Sheffer Stroke Reduction for Some Algebraic Structures
Ibrahim Şentürk, Tuhsin Oner 207

Some Properties of EM Rings
Manal Ghanem, Emad Abu Osba 208

On a Generalized Identity of a Prime Ring Involving $b$–Generalized Derivations
Nihan Baydar Yarbil 209

On cyclic codes of length $8p^t$ over $\mathbb{F}_{p^n} + u\mathbb{F}_{p^n}$
Saroj Rani 210

On Products of Irreducible Characters
Temha Erkoc, Burcu Çınarci 211
1. FOREWORD

On behalf of the Organizing Committee, we are very pleased to welcome you to the 3\textsuperscript{rd} International Conference of Mathematical Sciences (ICMS 2019) to be held between 4-8 September 2019 at Maltepe University in Istanbul.

We hope that, ICMS 2019 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.

Welcome to our conference, Maltepe University, İstanbul!

\textbf{Hüseyin Çakallı}  
\textbf{Chairman of the Organizing Committee}
2. COMMITTEES

HONORARY COMMITTEE

Hüseyin Şimşek (Founder of Maltepe University, Chairman of the Board of Trustees, Turkey)
Şahin Karasar, (Rector, Maltepe University, Turkey)

ORGANIZING COMMITTEE

Hüseyin Çakallı (Chairman, Maltepe University, Turkey)
Özay Gürtuğ (Maltepe University, Istanbul, Turkey)
Dragan Djordjevic (University of Nis, Faculty of Sciences and Mathematics, Serbia)
Marcelo Moreira Cavalcanti (State University of Maringa, Brazil)
Şebnem Yıldız (Ahi Evran University, Turkey)
Hülya Duru (Istanbul University, Turkey)
Özkan Değer (Istanbul University, Turkey)
Fuat Usta (Düzce University, Turkey)

LOCAL COMMITTEE

İdris Adnan Gümüş (Maltepe University)
Özay Gürtuğ (Maltepe University)
Hüseyin Çakallı (Maltepe University)
Sibel Ersan (Maltepe University)
Önder Şahinaslan (Maltepe University)
Tugba Akyel (Maltepe University)
İhan Güld (Maltepe University)
Bahriye Karaca (Maltepe University)
Filiz Çağatay Uğun (Maltepe University)
Selim Bayrakh (Maltepe University)
Vildan Katmer Bayrakh (Maltepe University)
INTERNATIONAL SCIENTIFIC COMMITTEE

A. Duran Turkoğlu (Turkey)                   Iffet Taylan (Turkey)
Ahu Acıkgoz (Turkey)                          İIter Büyükdigan (Turkey)
Allabereng Aşhralyev (Turkey)                  İvan Jeliakzov (USA)
Ayse Sonmez (Turkey)                           İzzet Sakalli (Northern Cyprus)
Ayhan Esi (Turkey)                             J. Diblík (Czech Republic)
Alexander Abanin (Russia)                      J. Gerardo Ahiutzi Reyes (Mexico)
A. Aladdin Malek (Iran)                        J. M. Cushing (USA)
Alemdar Demirel (Turkey)                      J. Z. Farkas (UK)
Amalia Pitolz (Poland)                         Javier F. Rosenblueth (Mexico)
Billy Rhoades (USA)                            Jean Horgan (Ireland)
Bipan Hazarika (India)                        Jiling Cao (New Zealand)
Bedriye Zeren (Turkey)                         K. Fahem (Algeria)
Boyan Dimitrov (USA)                           K. Khan (USA)
Cigdem Gunduz Aras (Turkey)                    Ljubisa D. R. Kocinac (Serbia)
David Herrera Carrasco (Mexico)               Makhmud Sadybekov (Kazakhstan)
Dejan Ilic (Serbia)                            M. Ali Sarigol (Turkey)
Dragan Djordjevic (Serbia)                     Marcelo Moreira Cavalcanti (Brazil)
E. Fokoue (USA)                                M. Buntinas (USA)
E. Alexov (USA)                                Mehmet Dik (USA)
Ekrem Savas (Turkey)                           Mehmet Unal (Turkey)
Evren Hincal (Turkey)                          M. F. Shaughnessy (USA)
Filiz Dik (USA)                                M. Matejdes (Slovakia)
G. Anastasiiou (USA)                           Mark Burgin (USA)
H. A. El-Metwally (Egypt)                     Mujgan Tez (Turkey)
Huseyin Bereketoglu (Turkey)                   Necip Simsek (Turkey)
H. Ersalluakh (USA)                            Omer Asilm Sacli (Turkey)
H. Nour Eldin (Denmark)                       Onder Sahinaslan (Turkey)
Huseyin Cakali (Turkey)                        Ozay Gurtug (Turkey)
Huseyin Kaplan (Turkey)                        Osman Mucuk (Turkey)
Hongde Hu (USA)                                Oner Cakar (Turkey)
I. G. Avramidi (USA)                           Pratulananda Das (India)
Ibrahim Canak (Turkey)                         Pablo Amster (Argentina)
İdris Adnan Gümüş (Turkey)                     Robin Harte (Ireland)
Richard Patterson (USA)
Sahin Uyaver (Turkey)
Sajid Hussain (Canada)
Sebnem Yıldız (Turkey)
Sibel Ersan (Turkey)
W. H. Ruckle (USA)
Xiaoping Shen (USA)
Tynysbek Kalmenov (Kazakhstan)
Valeria Neves Domingos Cavalcanti (Brazil)
Y. Lio (USA)
Yusuf Unlu (Turkey)
Yi Mu (Australia)
Zbigniew Piotrowski (USA)
3. SESSIONS

The lectures in the following parallel sessions are to be held after the plenary speakers lectures:

1. "Topology" organized by Ljubisa D. R. Kocićac,
2. "Analysis and Functional Analysis" organized by Ibrahim Canak,
3. "Sequences, Series, Summability" organized by Hacer Sengül,
4. "Fixed Point Theory" organized by Duran Turkoglu,
5. "Numerical Functional Analysis" organized by Allaberen Ashyralyev,
6. "Computer Science and Technology" organized by Sahin Uyaver,
8. "Recent themes on Controllability and Stability of PDE's" organized by Valeria Neves Domingos Cavalcanti, and Marcelo Moreira Cavalcanti,
10. "Geometry, and Mathematical Education" organized by İlhan Gul.
4. ACKNOWLEDGMENTS

We thank firstly the founder of Maltepe University, Hüseyin ŞİMŞEK, the rector of Maltepe University, Prof. Dr. Şahin KARASAR. We also thank the paralell session organizers, and then all scientific committee members who reviewed abstracts which made the conference better.

There are many people who spent a lot of time and effort to make this conference possible. We would like to thank especially to the following young colleagues who had contributed to the success of this conference in various ways:

Önder Şahinaslan, Maltepe University, Turkey
Fuat Usta, Düzce University, Istanbul, Turkey
Özkan Değer, Istanbul University, Istanbul, Turkey
Optimal Control Approach to Study Two Strain Malaria Model

Bashir Abdullahi Baba, Parvaneh Esmaili, Isa Abdullahi Baba
Department of Electrical and Electronics Engineering, Near East University, Nicosia, TRNC, Mersin 10, Turkey
bashbaba2000@gmail.com and parvaneh.esmaili@neu.edu.tr
Department of Mathematics, Bayero University Kano, Nigeria
isababa7@yahoo.com

Control of Malaria is very difficult due to anti malarial drug resistant diseases. Many control measures exist such as; insecticides treated bed net (ITNs) and drug treatments. Most mathematical models in literature used constant control measures which is not realistic. Here we use optimal control as a measure in curtailing the disease spread. The control function is added in the sensitive strain. Analysis of the controller was carried out.

Keywords: Optimal control, mathematical model, Hamiltonian, two strain, malaria

2010 Mathematics Subject Classification: 93C10, 93C40

References


