

**9TH INTERNATIONAL
CONFERENCE ON
COMPUTATIONAL
MATHEMATICS AND
ENGINEERING SCIENCES**

17 – 19 May 2025,
Diyarbakır – Türkiye

**PROGRAM
BOOK**

FACE *to* FACE

THE NINETH INTERNATIONAL CONFERENCE ON COMPUTATIONAL MATHEMATICS AND ENGINEERING SCIENCES (CMES- 2025), DİYARBAKIR/TÜRKİYE, MAY 17-19, 2025

The Ninth International Conference on Computational Mathematics and Engineering Sciences (CMES-2025) will be held in Dicle University from 17- to 19 May 2025 in Dicle, Türkiye. It provides an ideal academic platform for researchers and professionals to discuss recent developments in both theoretical, applied mathematics and engineering sciences. This event also aims to initiate interactions among researchers in the field of computational mathematics and their applications in science and engineering, to present recent developments in these areas, and to share the computational experiences of our invited speakers and participants.

The Organizing Committee

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MESSAGE FROM THE GENERAL CHAIRS



Dear Conference Attendees,

We are honored to welcome you to the **Nineth International Conference on Computational Mathematics and Engineering Sciences (CMES-2025)** at Dicle University from 17 to 19 May 2025 in Diyarbakır City, Türkiye.

CMES, founded in 2016 at Faculty of Science and Techniques Errachidia Moulay Ismail University Morocco is an annual international conference, which was very successful in the past years by providing opportunities to the participants in sharing their knowledge and informations and promoting excellent networking among different international universities. This year, the conference includes 200 extended abstracts, several submissions were received in response to the call for papers, selected by the Program Committee. The program features keynote talks by distinguished speakers such as:

Dumitru Baleanu from Lebanese American University, Beirut, Lebanon; **Bayer Okutmustur** from Middle East Technical University, Türkiye; **Mehrdad Lakestani** from Tabriz University, Iran, **Ekrem Savas** from Usak University, Türkiye; **Ozlem Defterli** from Çankaya University, Türkiye; **Sedaghat Shahmorad** from Tabriz University, Iran. The conference also comprises contributed sessions, posters sessions and various research highlights.

We would like to thank the Program Committee members and external reviewers for volunteering their time to review and discuss submitted abstracts. We would like to extend special thanks to the Honorary, Scientific and Organizing Committees for their efforts in making CMES-2025 a successful event. We would like to thank all the authors for presenting their research studies during our conference. We hope that you will find CMES-2025 interesting and intellectually stimulating, and that you will enjoy meeting and interacting with researchers around the world.

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TOPICS

Control Theory,
Game Theory,
Applied Mathematics,
Financial Mathematics,
Artificial Intelligence,
Education Sciences,
Engineering Sciences,
Computer Science,
Information Technology,
Geometry and Its Applications,
Analysis and Its Applications,
Statistics and Its Applications,
Algebra and Its Applications,
Topology and Its Application,
Chaos and Dynamical Systems,
Cryptography and its Applications,
Fractional Calculus and Applications,
Economics and Econometric Studies,

Electrical and Electronic Engineering,
Defense industry and applications,
Mathematical Biology,
Computational Epidemiology,
Mathematical Chemistry,
Mathematics Education and Its Applications,
Numerical Methods and Scientific
Programming,
Linear and Nonlinear programming and
Dynamics,
Modeling of Bio-systems for Optimization
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Çağrı Yılmaz (Fırat University, Elazığ,
Türkiye)
Merve Zeynep Gecmen (Ağrı İbrahim Çeçen
University, Ağrı, Türkiye)
Necati Erdoğan (Van Yüzüncü Yıl
University, Van, Türkiye)

Arif Özkul (Fırat University, Elazığ, Türkiye)
Süleyman Sarıkaya (Fırat University, Elazığ, Türkiye)
Şeyma Firdevs Korkmaz (Fırat University, Elazığ, Türkiye)
Tuğçem Partal (Recep Tayyip Erdoğan University, Türkiye)
Yasemin Bakır (Fenerbahçe University, Türkiye)
Funda Türk (Bartın University, Türkiye)
Ali Sercan Karakaş (İnönü University, Türkiye)
Neşe Dokumacı Sütçü (Dicle University, Türkiye)

Halis Yılmaz (Dicle University, Türkiye)
Mustafa İlhan (Dicle University, Türkiye)
Ali İhsan Mut (Dicle University, Türkiye)
Yılmaz Gündüzalp (Dicle University, Türkiye)
Mustafa Uğurlu Arslan (General Secretary of Dicle University, Türkiye)
Özkan Cığa (Vice Dean of Education Faculty, Diyarbakır, Türkiye, Türkiye)
Mehmet Serkan Şahin (Vice Dean of Education Faculty, Diyarbakır, Türkiye)

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İlkay Açıkgöz Erkaya, Ahi evran University, Türkiye
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PROCEEDINGS

Full version of submitted papers will be published in Special Volumes of reputed journals. Procedure, Guidelines and Checklist for the preparation and submission of papers to the Proceedings of CMES-2025 can be found in the journals websites. The journals in which selected and peer-reviewed full papers of CMES-2025 will be published are as follows:

1. BOOK OF ABSTRACTS [Free of charge]

If Authors submit ABSTRACT TEXTS, then, after getting referees evaluations for these abstracts, they will be published in ABSTRACT PROCEEDING BOOK of CMES-2025. For FULL TEXT PAPERS, Authors have to submit their FULL TEXT PAPERS online via submission system of CMES-2025. These FULL TEXT PAPERS will be published in FULL TEXT PROCEEDING BOOK of CMES-2025 after getting at least two positive reports.

2. CONFERENCE PROCEEDINGS [Free of charge]

At the beginning, if Authors submit FULL TEXT PAPERS, then, after getting at least two positive referee reports, FULL TEXT PAPERS will be published in FULL TEXT PROCEEDING BOOK of CMES-2025 with ISBN:77733 number. Therefore, Abstracts of these FULL TEXT PAPERS will **NOT** be published in ABSTRACT PROCEEDING BOOK of CMES-2025.

3. FRACTAL AND FRACTIONAL JOURNAL [SCI-E],

Selected papers from CMES-2025 will be published in a special issue dedicated to the Conference entitled **“Feature Papers for Mathematical Physics**

Section”.

https://www.mdpi.com/journal/fractalfract/special_issues/1TAP5BBZ45

This journal is indexed by SCI-E.

4. PROCEEDINGS OF THE INSTITUTE OF MATHEMATICS AND MECHANICS [E-SCI]

Selected papers from CMES-2025 will be published by <https://proc.imm.az/special/>

This journal is indexed by E-SCI.

5.TURKISH JOURNAL OF SCIENCE, [FREE]

Participants of CMES 2025 can submit their good quality papers to Turkish Journal of Science. After the peer review process, the papers will be published at TJOS. The authors must write “CMES 2025” as comments to the editor.

(Editor in Chief: Dr. Ahmet Ocak AKDEMİR) For on-line submission: <https://dergipark.org.tr/tr/pub/tjos>

6.TURKISH JOURNAL OF INEQUALITIES, [FREE]

“Participants of CMES 2025 can submit their good quality papers to Turkish Journal of Inequalities. Selected papers will be published at TJI after the

peer review process. The participants can send their papers to erhanset@tjinequality.com. The authors must write "CMES 2025" as the subject. (Editor in Chief: Prof. Dr. Erhan SET)
<http://tjinequality.com/>

7. MATHEMATICS IN NATURAL SCIENCE (MNS)

Authors can submit their full text paper directly to the journal by using the following link
<https://www.isr-publications.com/mns>

8. MATHEMATICS IN ENGINEERING, SCIENCE AND AEROSPACE (MESA), [FREE, SCOPUS]

"Selected papers will be published after peer review in the Journal of Mathematics in Engineering, Science and Aerospace (MESA)"
(Editor in Chief: Prof. Seenith Sivasundaram)
<http://nonlinearstudies.com/index.php/mesa>

9. APPLIED MATHEMATICS AND NONLINEAR SCIENCES, [SCOPUS]

Participants of CMES 2025 can submit their high quality full text papers to Applied Mathematics and Nonlinear Sciences by selecting CMES-2025 under the Select Article Type Menu.
<https://www.editorialmanager.com/amns/default.aspx>

10. MATHEMATICAL MODELLING AND NUMERICAL SIMULATION WITH APPLICATIONS (MMNSA), [TR DİZİN]

The Special Issue on "Advanced Methods of Modelling and Numerical Computation in Science and Engineering". Authors can submit their full text paper directly to the journal by using the information provided in the following link
https://mmnsa.org/index.php/mmnsa/special_issues/SI-CMES2023

11. SYMMETRY [SCI-E] ; SPECIAL ISSUE "ADVANCES IN MATRIX TRANSFORMATIONS, OPERATORS AND SYMMETRY"

Authors can submit their full text paper directly to the journal by using the following link
https://www.mdpi.com/journal/symmetry/special_issues/Advances_Matrix_Transformations_Operators_Symmetry

12. YUZUNCU YIL UNIVERSITY JOURNAL OF THE INSTITUTE OF NATURAL AND APPLIED SCIENCES (TR-Dizin)

Authors can submit their full text paper directly to the journal by using the following link
<https://dergipark.org.tr/tr/pub/yyufbed>

13. PEDAGOGICAL PERSPECTIVE (PEDPER)

Pedagogical Perspective (**PedPer**) is an international, double blind reviewing, non-profit, professional scientific journal. PedPer is a journal that accepts manuscripts related to pedagogy and education.
<http://pedagogicalperspective.com/>

PLENARY & INVITED TALKS



MODIFIED FRACTIONAL OPERATORS: THEORY AND APPLICATIONS

Dumitru Baleanu¹

¹Department of Computer Science and Mathematics, Lebanese American University, Beirut, Lebanon and Institute of Space Sciences-Subsidiary of INFLPR,

Magurele-Bucharest, Romania

dumitru.baleanu@lau.edu.lb,

Abstract

Fractional Calculus deals with the study of so-called fractional order integral and derivative operators over real or complex domains, and their applications. In this talk I will discuss the modified ABC operator and I will explain the related properties and its real world applications.

Keywords: Fractional calculus; General kernel; Modified ABC operator.

REFERENCES

1. Mohammed Al-Refai, Dumitru Baleanu, On an extension of the operator with Mittag-Leffler kernel, *Fractals*, 30(51), 2022, Article number 2240129.



A COMPARATIVE STUDY OF ADAPTIVE GRID METHODS FOR BURGERS MODELS

Baver Okutmustur¹

¹Department of Mathematics, Middle East Technical University (METU), Ankara, Turkey

baver@metu.edu.tr

Abstract

This work presents comparative numerical study of shock solutions in classical and relativistic a Burgers models using two finite volume-based adaptive mesh refinement (AMR) strategies: h -adaptivity (local grid refinement) and r -adaptivity (mesh redistribution). The h -method dynamically adjusts resolution by adding/removing cells in shock regions, while the r -method maintains a fixed cell count but optimally redistributes points to sharpen shock resolution. We compare both approaches in terms of accuracy and efficiency, demonstrating their effectiveness for handling shocks and nonlinear waves in both classical and relativistic cases. This work is based on the joint work [4].

Keywords: Adaptive grid; h -refinement; r -refinement; Monitor function; Finite volume method; Relativistic Burgers equation

REFERENCES

2. J.M. Stockie, J.A. Mackenzie, R.D. Russell, A moving mesh method for one-dimensional hyperbolic conservation laws, **SIAM J. Sci. Comput.** 22 (2001) 1791–1813.
3. H.Z. Tang, T. Tang, Adaptive mesh methods for one- and two-dimensional hyperbolic conservation laws, **SIAM J. Numer. Anal.** 41 (2003) 487–515.
4. A. van Dam, P.A. Zegeling, A robust moving mesh finite volume method applied to 1D hyperbolic conservation laws from magnetohydrodynamics, *Journal of Computational Physics*, Volume 216, Issue 2, 2006, 526-546.
5. B. Okutmustur, K. Vuik, K. Yigit, Adaptive Mesh Refinement Methods for Relativistic Burgers-Schwarzshild Model, in preparation.



THE DEVELOPMENT ADVENTURE OF MATHEMATICS

Ekrem SAVAŞ

Uşak University, Uşak-Turkey

Email: ekremsavas@yahoo.com

Abstract:

Mathematics has always existed since the first steps of cultural history of the living creatures called human beings. It has always been a part of culture with numbers, figures, characteristics and with their applications according to the technical levels of the day. In this study, a general knowledge will be given concerning how math began and what phases it went through up to now. In getting the data, books and articles dealing with the issue have been studied. The findings we have show that it is not possible to say exactly where and when mathematics began. However, we can say, on the basis of findings, that math began in Egypt and Mesopotamia between 3000-2000 B.C. and then spread to other countries.



ADVANCED MATHEMATICAL MODELLING AND INFERENCE OF GENE REGULATORY NETWORKS WITH REAL DATA

Ozlem Defterli¹

¹Department of Mathematics, Faculty of Arts and Sciences,

Cankaya University, Ankara, Turkey

defterli@cankaya.edu.tr

Abstract

Systems biology addresses the challenge of understanding living systems in their entirety, as opposed to concentrating on individual biological elements. One approach to describing biological systems is through networks which are the graphical representations in which nodes denote entities of the system and edges signify the relationships between them. Given that the underlying structure of many networks remains partially or entirely unknown, a key objective of systems biology is to predict the complex and dynamic interactions among genes. This is called *network inference (NI)* that focuses on deducing network structures by leveraging high-throughput data in combination with reverse engineering methods. A fundamental challenge in network inference is the high dimensionality—often involving thousands of genes—contrasted with the relatively small number of available samples. Consequently, gene regulatory network (GRN) inference is inherently under-determined [1,2]. In this study, a time-series gene expression data-set derived from a micro-array chip experiment involving a model eukaryotic organism is used for illustrative purposes. The dataset's key characteristics are analyzed to gain insights into the structure and behavior of the underlying biological process. Subsequently, the temporal dynamics of the system are modeled in a discrete-time framework, employing advanced mathematical modeling techniques to capture the complexity and regulatory mechanisms of gene interactions [3,4].

Keywords: Network inference, Mathematical modelling, Data processing.

REFERENCES

1. Slonim K. Donna, From patterns to pathways: gene expression data analysis comes of age (Review), *Nature Genetics*, Vol:32(Suppl.), 502–508, 2002.



DESIGN AND DEVELOPMENT OF ADVANCED MAGNETIC MATERIALS VIA COMPUTATIONAL MATERIAL SCIENCE FOR TECHNOLOGICAL APPLICATIONS

Amdulla O. Mekhrabov^{1*} and M. Vedat Akdeniz²

¹Novel Materials and Nanotechnologies Institute, Azerbaijan Technical University (AzTU), Az1073, Baku, Azerbaijan, *emdulla.mehrabov@aztu.edu.az

²Novel Alloys Design and Development Lab (NOVALAB), Department of Metallurgical and Materials Engineering (Met E), Middle East Technical University (METU), 06800-Ankara, Turkey

Abstract: The presentation will be an overview of the main research thrusts at the “Novel Alloys Design and Development Lab” (NOVALAB) of MetE-METU and at "Novel Materials and Nanotechnologies" Institute of Azerbaijan Technical University (AzTU) in the designing, development and utilizations of advanced multicomponent magnetic materials for technological applications. Fundamental principles and main aspects of *Computational Materials Science (CMS)* for *modeling and simulation based “alloy design”* which has been developed over 45 years by Prof. Mekhrabov, will be presented.

Keywords: Modeling, Simulation, Soft Magnetic Materials, Metallic Glasses, Nanostructured alloys, Glass Formation Ability, Monte Carlo, Reverse Monte Carlo, Molecular Dynamics

REFERENCES

1. Aykol M., Mekhrabov A.O. and Akdeniz M.V., Nano-scale Phase Separation in Amorphous Fe-B Alloys: Atomic and Cluster Ordering, *Acta Mater.*, vol. 57, 171- 81, 2009.
2. Aykol M., Akdeniz M.V. and Mekhrabov A.O., Solidification behavior, glass forming ability and thermal characteristics of soft magnetic Fe-Co-B-Si-Nb-Cu bulk amorphous alloys, *Intermetallics*, vol. 19, 1330-1337, 2011.
3. M.V. Akdeniz and A.O. Mekhrabov, Size dependent stability and surface energy of amorphous FePt nanoalloy, *J. of Alloys and Comp.*, vol. 788, 787-798, 2019.



NUMERICAL SOLUTION OF SINGULARLY PERTURBED INITIAL VALUE PROBLEMS WITH DELAY USING B-SPLINE WAVELETS

MEHRDAD LAKESTANI

Department of Applied Mathematics, University of Tabriz, Tabriz, Iran

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ABSTRACT

In this paper, we solve a singularly perturbed initial value problem with delay by using c B-Spline wavelets. The properties of these functions are provided, and by employing the operational matrix of differentiation, a numerical method is generated over some subintervals that reformulates the problem into a system of algebraic equations. This system can be solved to find the approximate solution. Numerical results demonstrate the efficiency of the method.

Keywords: Singularly perturbed problem; B-Spline wavelets; Delay differential equation.

REFERENCES

1. M. Lakestani, M. Dehghan, The solution of a second-order nonlinear differential equation with Neumann boundary conditions using semi-orthogonal B-spline wavelets, *International Journal of Computer Mathematics*, Vol: 83, No:8- 9, 685–694, 2006.
2. G.M. Amiraliyev, F. Erdogan, A finite difference scheme for a class of singularly perturbed initial value problems for delay differential equations, *Numerical Algorithms*, Vol: 52, 663- 675, 2009.

5/17/2025 Saturday

10.00–11:00

OPENING CEREMONY–Orhan Asena Hall (E Hall)

Prof. Dr. Kamuran ERONAT–Rector of Dicle University
Prof. Dr. Fahrettin GÖKTAŞ–Rector of Fırat University
Prof. Dr. Şengül KOCAMAN–Dean of Education Faculty of Dicle University
Prof. Dr. Erhan PIŞKİN–Chair of CMES of Dicle University
Prof. Dr. Zakia HAMMOUCH–Chair of CMES
Prof. Dr. Rifat ÇOLAK–Department of Fırat University

11:00–11:30

PLENARY LECTURE–Orhan Asena Hall (E Hall)

Speaker: Prof. Dr. Dumitru Baleanu
Title: Modified Fractional Operators:Theory And Applications
Chair: Prof. Dr. Sedaghat Shahmorad

11:30 – 12:00

PLENARY LECTURE–Orhan Asena Hall (E Hall)

Speaker: Prof. Dr. Ekrem Savaş
Title: The development adventure of mathematics
Chair: Prof. Dr. Baver Okutmuşur

12:00–13:30

Lunch (Nasır Usta (Dağkapı))

Education Faculty

Harezmi Hall

14:00–15:15
17.05.2025

Chair

Authors

Nuri Murat Yağmurlu,
Ali Sercan Karakaş,
Selçuk Kutluay

Selçuk Kutluay,
Ali Sercan Karakaş,
Nuri Murat Yağmurlu

Sibel Özer, Yusuf Uçar,
Halil Beyazıt

Barış Yapişkan

Ugur Bayrakcı,
Seyma Tuluçe Demiray,
Huseyin Yıldırım

İrem Akbulut Arık, Seda
İğret Araz

Seda İğret Araz

Prof. Dr. Yusuf Uçar

Titles

The Newest Numerical Investigation Of The
Equal-Width Wave Equation With Quintic Hermite
B-Spline Basis Functions

A Robust numerical investigation of the MEW
equation with FEM based on Hermite B-spline
basis functions

Numerical Solution of Grlw Equation By Cubic
Hermite B-Spline Collocation Method

Pfaffian Formulation of Nonlinear Differential
Equations

New soliton solutions with modified generalized
exponential rational function method

Epidemiological Modeling with Seasonal
Environmental Effects

Investigating Crossover Behaviors in Chaotic
Systems

15:15–15:30

Coffee Break

Harezmi Hall**15:30–16:45**
17.05.2025**Chair**

Authors

Doç. Dr. Faruk Düşünceli

Titles

İlker Küçükoğlu,
Hacer Özden Ayna,
Aysun Yurttaş Güneş,
İsmail Naci CangülA New Topological Index For Supplier Selection In
Procurement PlansAbdullah Kaplan,
Zafer BekiryaziciAnalysis Of Win-Probabilites In Turkish style
Rummikub Tile Game From A Statistical
PerspectiveAyşe Metin Karakaş,
Fatma Bulut,
Murat Karakaş

New Lindley Distribution and Applications

Nebi Yılmaz

Nonexistence Of Global Solutions For The
Logarithmic Kirchhoff-Type Hyperbolic Equation
With Variable ExponentÜmmügülsüm Günay,
Murat ÖzdemirThe Approximation of Fixed Point of Endriched
 Φ -Contraction Mappings

Haydar Alıcı

Explicit Representations for a Class of Gauss
Hypergeometric Functions**Ebul Vefa Hall****14:00–15:15**
17.05.2025**Chair**

Authors

Doç. Dr. Murat Polat

Titles

Muhteşem Demir,
Erhan PişkinGrowth Of Solutions For The Kirchhoff Type
EquationAyşe Demirhan,
Erhan PişkinExistence Of Solutions For The Hyperbolic Type
EquationGüldar Efe,
Erhan PişkinLocal Existence Of Solutions For A Delayed
Logarithmic Wave EquationBera Aydın,
İsmail YıldızProduction of Foam Concrete with Hasankale
Pumice and Expanded Micronized Perlite

Esra Pamukçu

Robustness 2.0: A Transformational Story Between
Artificial Intelligence and StatisticsÖzlem Cerit,
Durmuş YarımpanbuçDeformation Analysis of Fg Longitudinal Rods By
Pseudospectral Chebyshev MethodGazal Okşaş, Ali Yıldırım,
Durmuş Yarımpanbuç

Thermal Efficiency of Fgm Annular Fins

15:15–15:30**Coffee Break**

Ebul Vefa Hall**15:30–16:45**
17.05.2025**Chair**

Authors

Prof. Dr. Ercan Tunç

Titles

Ercan Tunç

Oscillation results of second-order noncanonical neutral differential equations with distributed deviating arguments

Ercan Tunç, Adil Kaymaz

A Study On Oscillation Of Neutral Differential Equations With Damping Term

Orhan Özdemir,
Ercan Tunç

On The Oscillation Of Fourth-Order Neutral Differential Equations

Derya Deniz,
Ebru Cavlak Aslan

Various Optical Soliton Solutions for Combined Model Using Analytical Technique

Yener Altun,
Şakir İşleyen

A Neutral System Approach To Asymptotic Stability Of Q-Fractional Singular Delay Systems

Özlem Öcal, Durmuş
Yarımpabuç

Elastic Analysis Of Rotating Fg Pressure Vessels Using The Power Series Method

Oğuzhan Demirel,
Durmuş Yarımpabuç

Stress Analysis of a Rotating Fg Polar Orthotropic Disk

Nasreddin Tusi Hall**14:00 – 15:15**
17.05.2025**Chair**

Authors

Prof. Dr. Cemil İnan

Titles

Cemil İnan

Comparison of Solution Methods In Nonlinear Equations With One Unknown

Cemil İnan

Investigation of Iterative Approximate Solutions of Linear Equation Systems

Taylan Demir,
Fahd Jarad

Fractional Model of Human Metapneumovirus (HMPV)

Begüm Sağlam, Elif Nisa
Sert, Zeliha Geçimli,
Mazlum Gezer, Halis
Yilmaz

Travelling-wave Solutions of Evolution Equations

Ayşe Fidan,
Erhan Pişkin

Decay And Blow Up of Solutions for a Weighted Biharmonic Equation

Erkan Sancar,
Erhan Pişkin

Blow Up of Solutions for a Fractional Petrovsky Equation

15:15–15:30**Coffee Break**

Nasreddin Tusi Hall**14:00 – 15:15**
17.05.2025**Chair**

Authors

Prof. Dr. Zehra Yücedağ

Titles

Gülay Oğuz, Hüseyin
Manap, Ahmet Taş

An Introduction to soft epigroups

Safar Irandoust-pakchin,
Somaiyeh Abdi-
mazraehSome new numerical methods for solving
fractional stochastic differential equationsHakan Kutlu, Aynur
YalçinerError and Erasure Correction Using Parikh Matrices
of Uniformly Parikh-Friendly WordsM. Mustafa Beydağı ,
A. Fatih Özcan, İlhan İçenRough Quotient Rings And Homomorphisms of
Rough RingsM. Mustafa Beydağı,
İlhan İçen, A. Fatih Özcan

Use of Rough Set Theory In Data Mining

Semih Geçen, İlhan İçen,
A. Fatih Özcan

The Soft Fibre Of Groupoids

Semih Geçen,
A. Fatih Özcan, İlhan İçen

Soft Set Theory And Various Application Areas

Ali Kuşçu Hall**14:00 – 15:15**
17.05.2025**Chair**

Authors

Doç. Dr. Meral Süer

Titles

Kevser Soytürk, Mustafa
Gezek, Mahmut Ergüt

Unital Designs Admitting Blocking Sets

İremnur Yüzer
Boynikoğlu, Handan
ÖztekinThe Curves With Modified Orthogonal Frame of in
The Minkowski 3-SpacePakize Uygun, Mehmet
Atçeken, Tuğba MertSome Special Condition For Pseudosymmetric
Kenmotsu Manifolds

Fatma Almaz

On The Special Surfaces In Semi-Euclidean
4-SpaceKerem Kaçar,
Durmuş YarımpaşThermal Analysis of Fg Porous Fin By Adomian
Decomposition MethodZuhal Bilir,
Mehmet Ali Sabihaoğlu,
Durmuş YarımpaşApplication of Inverse Laplace Transform Methods
on Heat Conduction Equation**15:15–15:30****Coffee Break**

Ali Kuşçu Hall**15:30 – 16:45**
17.05.2025**Chair**

Authors

Prof. Dr. H. Özlem Güney

Titles

Nursemin Kas, Tolga Akturk

Modified Exponential Function Method for Traveling Wave Solutions of the Nonlinear Mathematical Model

Koray İbrahim Atabey,
Mikail Et,
Muhammed Çınar

Pell Statistical Convergence

Yasin Kaya

On Generalized Proportional Fractional Integral

"Davood Ahmadian,
Vahid Norouzi,
Fevzi Erdogan,
Sevda Ozdemir Calikusu

Hybrid Jump-Heston and Bidirectional LSTM Model with Attraction Mechanism for S&P 500 Forecasting

Sevda Ozdemir Calikusu,
Fevzi Erdogan

Regime-Based Modeling of USD/TL via Stochastic Differential Equations and Change Point Estimation

Hakan Faik Er,
Ekrem Kadioğlu

A Look at The Analysis of Coefficients of Univalent Functions with Artificial Intelligence

Tümer Akbayır

Used in Financial Time Series Mathematical Technical Indicators Foundations

Ömer Hayyam Hall**14:00 – 15:15**
17.05.2025**Chair**

Authors

Prof. Dr. Sedat İlhan

Titles

Yıldırım Demir,
Çetin Görür,
Saniye Demir

Investigation of Wind Directions By Circular Data Analysis

Süheyla Elmas,
Ferdî Çınar

On Brief Note Regarding F-Contraactions In Complete S-Metric Spaces

Süheyla Elmas,
Aleyna Özel

A Study on Wardowski Contraction In A-Metric Spaces

Bilge Su Çifçi,
Samet Gündüz

Examining The Golden Ratio-Aesthetic Relationship In Historical Bridges in Diyarbakır

Yasemin Taşyurdu,
Beyza Aydan

Generalized Bivariate Fibonacci and Lucas Polynomials by Hessenberg Matrices

Yasemin Taşyurdu,
Beyza Aydan

Bi-Periodic Generalized Bivariate Fibonacci Polynomials

15:15–15:30**Coffee Break**

Sabit Bin Kurra Hall**14:00–15:15**
17.05.2025**Chair**

Authors

Dr. Öğr. Üyesi Yasin Kaya

Titles

Muhammad Imran, Brett Allen McKinney, Saira Batoo

Mathematical modeling and control analysis for the Whooping Cough using SVEITR compartmental Model

Haydar Alıcı

Solutions of Two Exponential Type Potentials for Diatomic Molecules

Bedrettin Savaş, Efkân Çatıker, Temel Öztürk, Abdullah Karanfil

Synthesis and Characterization of a Series of Poly(2-hydroxypropyl acrylate)-based Copolymers

Özden Taşdemir, Muhammed Emin Kula, Ömer Gündoğdu

Evaluation of Biomechanical and Physiological Effects of Vehicle Vibrations on Pregnant Drivers

Fahredden Melih Dursun, Ali Öz

Strength Performance of Alkali Activated Mortars Produced with Waste Brick Powder Depending on NS/NH Ratio and Curing Temperature

İbrahim Boubacr Mounkaila, Gökhan Kaplan

An Experimental Study on the Durability of One-Part Geopolymer Foam Concrete Under NaCl Effect

15:15–15:30**Coffee Break****17:00–17:30****PLENARY LECTURE–Mehmet Aki Ersoy Hall**

Speaker: Prof. Dr. Baver Okutmustur

Title: A Comparative Study of Adaptive Grid Methods For Burgers Models

Chair: Prof. Dr. Hacı Mehmet Baskonus

17:30 – 17:45**Coffee Break****17:45 – 18:15****PLENARY LECTURE–Mehmet Aki Ersoy Hall**

Speaker: Prof. Dr. Sedaghat Shahmorad

Title: Some effective numerical methods for fractional differential equations

Chair: Prof. Dr. Fevzi Erdoğan

19:00 – 21:00**Dinner (Saklı Cennet)**

5/18/2025 Sunday

09:45 – 10:15

PLENARY LECTURE–Mehmet Aki Ersoy Hall

Speaker: Prof. Dr. Özlem Defterli

Title: Advanced Mathematical Modelling And Inference of Gene Regulatory Networks With Real Data

Chair: Prof. Dr. Alaattin Esen

10:15 – 10:30

Coffee Break

10:30 – 11:00

PLENARY LECTURE–Mehmet Aki Ersoy Hall

Speaker: Prof. Dr. Mehrdad Lakestani

Title: Numerical Solution Of Singularly Perturbed Initial Value Problems With Delay Using B-Spline Wavelets

Chair: Prof. Dr. Alaattin Esen

11:00–11:15

Coffee Break

11:15 – 12:30
18.05.2025

Chair

Authors

Doç. Dr. Mehmet Aydın

Titles

Dilara Altan Koç,
Gül Gözde Biçer Şarlak,
Hasan Bulut

Wave Dynamics In The Lonngren Equation: Exact
Solutions And Analysis

Gül Gözde Biçer Şarlak,
Özkan Koç, Sibel Paşalı
Atmaca,
Hasan Bulut

Exploring Nonlinear Wave Behavior In The Strain
Equation

Özlem Kırıcı, Hasan Bulut,
Melik Şenyuva

Investigation Of Dynamics Of Magnets Through
The Heisenberg Ferromagnetic Spin Chain
Equation

Ayşe Nur Akkılıç, Hasan
Bulut, Zulfurnain Sabir

An artificial neural network procedure for the
nonlinear typhoid fever disease system

Ulviye Demirbilek,
Hasan Bulut

Chaotic Dynamics of the Fractional Improved
mKdV Equation via Atangana Conformable
Derivative

Esin İlhan, Adel Sufyan
Hussain, Hasan Bulut

Machine Learning And Classical Estimation
Methods For Extreme-Value Generated Log-
Logistic Distributions: Properties And Performance
Analysis

Ali Algan,
Faruk Düşünceli

Numerical Solution of One-Dimensional Wave
Equation Using Artificial Neural Networks

Ahu Ercan,
Zehra Özcanoğlu

Euler Method In Numerical Solution of Fractional
Differential Equations

Aslıhan Dilek,
Nuray Altınöz,
Faruk Düşünceli

Numerical Solution of Time-Space Fractional-
Order Elliptic Partial Differential Equations Using
Artificial Neural Network

Ahu Ercan,
Zehra Özcanoğlu

Euler Method In Numerical Solution of Fractional
Differential Equations

Aslı Alkan, Hasan Bulut,
Ercan Çelik

The Novel Numerical Solutions For Time fractional
Fishers Equation

Özlem Kırıcı, Arif Özkul,
Hasan Bulut

A Collection Of Solitary Waves For The Fractional
Kadomtsev-Petviashvili modified-Equal-Width
Equation

Ebul Vefa Hall**11:15 – 12:30**
18.05.2025**Chair**

Authors

Dr. Öğr. Üyesi Alev Dülger

Titles

Adem Irmak, Arzu Aykut,
Merve Özer,
Sıdıka Şule Şener KılıçNumerical Calculations Using Newmark's Method
to Solve a Hyperbolic ProblemErkan Günerhan, Hatıra
Günerhan, Ercan ÇelikAnalytical Solution of a Caputo Fractional-Order
Computer Virus Propagation Model

Hatıra Günerhan

An Analytical Study of a Fractional Differential
Model for COVID-19

Hatıra Günerhan

Analytical Solution of a Mathematical Model for
the Spread of the Zika VirusGülay Oğuz,
Ercan Çelik

On The Structures Of Soft Ideals Over Dirings

Canıl Talantbekova,
Ercan ÇelikEstimating The Air Pollution Value of Bishkek City
With Arima Using Time Series MethodMehrdad Lakestani,
Fevzi ErdoganNumerical Solution Of Singularly Perturbed
Initial Value Problems With Delay Using B-Spline
Wavelets**Cahit Arf Hall****11:15 – 12:30**
18.05.2025**Chair**

Authors

Doç. Dr. Neşe Dokumacı Sütçü

Titles

Himmet Korkmaz,
Ayhan Çinici
Ali İhsan MutA Comparative Analysis Of The Problem solving
Processes Of Prospective Elementary Mathematics
And Science Teachers In The Context Of A Real-Life
ProblemAli İhsan Mut,
Muhammed Ahmet
Pekyen,
Himmet KorkmazAnalysis Of The Triangles In The Context Of
Prototypicality In The Türkiye Century Maarif Model
Mathematics Textbooks

Nejla Güreffe

Conceptual Perceptions of Prospective Teachers
Regarding the Concept of "Unit" in MathematicsMemik Alper Aslan,
Kemal ÖzgenInvestigation of Middle School Students' Real-Life
Problem Posing Processes

Ömer Hayyam Hall**11:15 – 12:30**
18.05.2025**Chair**

Authors

Dr. Ayşe Fidan

Titles

Fatma Sağsöz

Second Hankel Determinant for a Subclass of Bi-Univalent Functions Associated With Gegenbauer Polynomials and Subordination

Merve Özkan

Fixed Point Theorems For Four-Point Contractions

Muhammed Fatih
Şenocak,
Fatma Sağsöz

Coefficient Inequalities For A New Subclass Of Bi-Univalent Functions Defined By Gegenbauer Polynomials

Mücahit Aybas,
Yeşim Akbulut

An Optimal Coefficient Control Problem For A Linear Ordinary Differential Equation

Orhan Amirov,
Mesut Karabacak

Solution of An Optimization Problem Using Grover's Algorithm For Qutrit Systems

Ümmügülsüm Günay

The Approximation of Fixed Point of Endriched Φ -Contraction Mappings

Hülya Altınok, İsa Yıldırım

On Finite Families of Hemicontractive Mappings

Sezgin Akbulut,
İsa Yıldırım,
Büşra Melike Kör

Investigation of Applications of Fixed Point Iteration Methods With The Aid of Green's Function

İnci Gültekin,
Yasemin Taşyurdu,
Hiranur Karaca

The Gaussian Pell Numbers Via Permanents and Determinant of Tridiagonal Matrices

12:00 – 13:30**Lunch** (Nasır Usta (Dağkapı))**19:00 – 21:00****Dinner** (Final Schools)**SOCIAL ACTIVITIES****19.05.2025**

09:00–13:00

Inner Castle, Hz. Süleyman Mosque, Kurşunlu Mosque, Church, Four-legged Minaret, Great Mosque, Hasan Pasha Inn, Sülüklü Han, Bakırcılar Bazaar, Caravanserai

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