

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

The Nineth 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 intarnational 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; Baver 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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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,

Linearand Nonlinear programming and

Dynamics,

Modeling of Bio-systems for Optimization

and Control,

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Yılmaz Gündüzalp (Dicle 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.

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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_iss ues/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 online 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 reviwing, 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

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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.

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A COMPARATIVE STUDY OF ADAPTIVE GRID METHODS FOR BURGERS MODELS

Bayer Okutmustur¹

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

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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

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Abstract:

Mathematics has always existed since the first steps of culturel 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 Epypt 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

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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 highthroughput 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. Mekhrabov¹* and M. Vedat Akdeniz²

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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 Dinamics

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

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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
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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 Firat University

Prof. Dr. Şengül KOCAMAN-Dean of Education Faculty of Dicle University

Prof. Dr. Erhan PİŞKİN-Chair of CMES of Dicle University

Prof. Dr. Zakia HAMMOUCH-Chair of CMES

Prof. Dr. Rifat COLAK-Department of Firat 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 Okutmuştur

12:00-13:30 Lunch (Nasır Usta (Dağkapı))

Education Faculty

Harezmi Hall

14:00-15:15	Chair	Prof. Dr. Yusuf Uçar
17.05.2025	Authors	Titles
	Nuri Murat Yağmurlu, Ali Sercan Karakaş, Selçuk Kutluay	The Newest Numerical Investigation Of The Equal-Width Wave Equation With Quintic Hermite B-Spline Basis Functions
	Selçuk Kutluay, Ali Sercan Karakaş, Nuri Murat Yağmurlu	A Robust numerical investigation of the MEW equation with FEM based on Hermite B-spline basis functions
	Sibel Özer, Yusuf Uçar, Halil Beyazıt	Numerical Solution of Grlw Equation By Cubic Hermite B-Spline Collocation Method
	Barış Yapışkan	Pfaffian Formulation of Nonlinear Differential Equations
	Ugur Bayrakcı, Seyma Tuluce Demiray, Huseyin Yıldırım	New soliton solutions with modified generalized exponential rational function method
	İrem Akbulut Arık, Seda İğret Araz	Epidemiological Modeling with Seasonal Environmental Effects
	Seda İğret Araz	Investigating Crossover Behaviors in Chaotic Systems
15:15-15:30	Coffee Break	

Harezmi Hall		
15:30-16:45	Chair	Doç. Dr. Faruk Düşünceli
17.05.2025	Authors	Titles
	İlker Küçükoğlu, Hacer Özden Ayna, Aysun Yurttaş Güneş, İsmail Naci Cangül	A New Topological Index For Supplier Selection In Procurement Plans
	Abdullah Kaplan, Zafer Bekiryazici	Analysis Of Win-Probabilites In Turkish style Rummikub Tile Game From A Statistical Perspective
	Ayşe 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 Exponent
	Ümmügülsüm Günay, Murat Özdemir	The 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	Chair	Doç. Dr. Murat Polat
17.05.2025	Authors	Titles
	Muhteşem Demir,	
	Erhan Pişkin	Growth Of Solutions For The Kirchhoff Type Equation
	Erhan Pişkin Ayşe Demirhan,	Equation Existence Of Solutions For The Hyperbolic Type
	Erhan Pişkin Ayşe Demirhan, Erhan Pişkin Güldar Efe,	Equation Existence Of Solutions For The Hyperbolic Type Equation Local Existence Of Solutions For A Delayed
	Erhan Pişkin Ayşe Demirhan, Erhan Pişkin Güldar Efe, Erhan Pişkin	Equation Existence Of Solutions For The Hyperbolic Type Equation Local Existence Of Solutions For A Delayed Logarithmic Wave Equation Production of Foam Concrete with Hasankale
	Erhan Pişkin Ayşe Demirhan, Erhan Pişkin Güldar Efe, Erhan Pişkin Bera Aydın	Equation Existence Of Solutions For The Hyperbolic Type Equation Local Existence Of Solutions For A Delayed Logarithmic Wave Equation Production of Foam Concrete with Hasankale Pumice and Expanded Micronized Perlite Robustness 2.0: A Transformational Story Between
	Erhan Pişkin Ayşe Demirhan, Erhan Pişkin Güldar Efe, Erhan Pişkin Bera Aydın Esra Pamukçu Özlem Cerit,	Existence Of Solutions For The Hyperbolic Type Equation Local Existence Of Solutions For A Delayed Logarithmic Wave Equation Production of Foam Concrete with Hasankale Pumice and Expanded Micronized Perlite Robustness 2.0: A Transformational Story Between Artificial Intelligence and Statistics Deformation Analysis of Fg Longitudinal Rods By

Ebul Vefa Hall	Obain	Duck Du Fucus Tune
15:30-16:45 17.05.2025	Chair	Prof. Dr. Ercan Tunç
	Authors	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	Chair	Prof. Dr. Cemil İnan
17.05.2025	Authors	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,	Blow Up of Solutions for a Fractional Petrovsky Equation
	Erhan Pişkin	Legacion

Nasreddin Tusi				
14:00 - 15:15 17.05.2025	Chair	Prof. Dr. Zehra Yücedağ		
17.03.2023	Authors	Titles		
	Gülay Oğuz, Hüseyin Manap, Ahmet Taş	An Introduction to soft epigroups		
	Safar Irandoust-pakchin, Somaiyeh Abdi- mazraeh	Some new numerical methods for solving fracrtional stochastic differential equations		
	Hakan Kutlu, Aynur Yalçıner	Error and Erasure Correction Using Parikh Matrices of Uniformly Parikh-Friendly Words		
	M. Mustafa Beydağı , A. Fatih Özcan, İlhan İçen	Rough Quotient Rings And Homomorphisms of Rough Rings		
	M. 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	Chair	Doç. Dr. Meral Süer		
17.05.2025	Authors	Titles		
	Kevser Soytürk, Mustafa Gezek, Mahmut Ergüt	Unital Designs Admitting Blocking Sets		
	İremnur Yüzer Boynikoğlu, Handan Öztekin	The Curves With Modified Orthogonal Frame of in The Minkowski 3-Space		
	Pakize Uygun, Mehmet Atçeken, Tuğba Mert	Some Special Condition For Pseudosymmetric Kenmotsu Manifolds		
	Fatma Almaz	On The Special Surfaces In Semi-Euclidean 4-Space		
	Kerem Kaçar, Durmuş Yarımpabuç	Thermal Analysis of Fg Porous Fin By Adomian Decomposition Method		
	Zuhal Bilir, Mehmet Ali Sabihaoğlu, Durmuş Yarımpabuç	Application 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	Prof. Dr. H. Özlem Güney
17.00.2020	Authors	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 Kadıoğlu	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	Chair	Prof. Dr. Sedat İlhan
17.05.2025	Authors	Titles
	Yıldırım Demir, Çetin Görür, Saniye Demir	Investigation of Wind Directions By Circular Data Analysis
	Süheyla Elmas, Ferdi Çınar	On Brief Note Regarding F-Contractions 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	Chair	Dr. Öğr. Üyesi Yasin Kaya	
17.05.2025	Authors	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, Efkan 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	
	Fahreddin 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 Mounkaıla, 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. Haci 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 Erdoğ	an	
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	

Education Faculty

Harezmi Hall

11:15 - 12:30 18.05.2025

	Chair	Doç. Dr. Mehmet Aydın
	Authors	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 Kırcı, Hasan Bulut, Melik Şenyuva	Investigation Of Dynamics Of Magnets Through The Heisenberg Ferromagnetic Spin Chain Equation
	Ayse Nur Akkilic, Hasan Bulut, Zulqurnain 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 Kırcı, 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	Chair	Dr. Öğr. Üyesi Alev Dülger
18.05.2025	Authors	Titles
	Adem Irmak, Arzu Aykut, Merve Özer, Sıdıka Şule Şener Kılıç	Numerical Calculations Using Newmark's Method to Solve a Hyperbolic Problem
	Erkan Günerhan, Hatıra Günerhan, Ercan Çelik	Analytical 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 Virus
	Gülay Oğuz, Ercan Çelik	On The Structures Of Soft Ideals Over Dirings
	Canıl Talantbekova, Ercan Çelik	Estimating The Air Pollution Value of Bishkek City With Arima Using Time Series Method
	Mehrdad Lakestani, Fevzi Erdogan	Numerical Solution Of Singularly Perturbed Initial Value Problems With Delay Using B-Spline Wavelets
Cahit Arf Hall		
11:15 - 12:30	Chair	Doç. Dr. Neşe Dokumacı Sütçü
18.05.2025	Authors	Titles
	Himmet Korkmaz, Ayhan Çinici Ali İhsan Mut	A Comparative Analysis Of The Problem solving Processes Of Prospective Elementary Mathematics And Science Teachers In The Context Of A Real-Life Problem
	Ali İhsan Mut, Muhammed Ahmet Pekyen, Himmet Korkmaz	Analysis Of The Triangles In The Context Of Prototypicality In The Türkiye Century Maarif Model Mathematics Textbooks
	Nejla Gürefe	Conceptual Perceptions of Prospective Teachers Regarding the Concept of "Unit" in Mathematics
	Memik Alper Aslan, Kemal Özgen	Investigation of Middle School Students' Real-Life Problem Posing Processes

Ömer Hayyam Hall		
11:15 - 12:30	Chair	Dr. Ayşe Fidan
18.05.2025	Authors	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 Differantial 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 Ф-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



9TH INTERNATIONAL CONFERENCE ON COMPUTATIONAL MATHEMATICS AND ENGINEERING SCIENCES

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