



**ICAAM 2018**

**FOURTH INTERNATIONAL CONFERENCE ON ANALYSIS AND APPLIED MATHEMATICS**  
6-9 September 2018 / Near East University, Lefkosa, Mersin 10, Turkey

**Fourth International Conference on  
Analysis and Applied Mathematics**

**ICAAM 2018**

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**THE PROGRAM**

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**PLENARY LECTURES and SECTIONAL SPEECHES**

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6-9 September 2018

## ABOUT CONFERENCE:

The aim of the **International Conference on Analysis and Applied Mathematics (ICAAM)** is to bring mathematicians working in the area of analysis and applied mathematics together to share new trends of applications of mathematics. In mathematics, the developments in the field of applied mathematics open new research areas in analysis and vice versa. That is why, we plan to found the conference series to provide a forum for researches and scientists to communicate their recent developments and to present their original results in various fields of analysis and applied mathematics.

The conference is organized biannually. Previous conferences were held in Gumushane, Turkey in 2012, in Shymkent, Kazakhstan in 2014, and in Almaty, Kazakhstan in 2016. The proceedings of ICAAM 2012, ICAAM 2014, ICAAM 2016 and ICAAM 2018 were published in AIP (American Institute of Physics) Conference Proceedings. **Near East University** is pleased to host the fourth conference which is focused on various topics of analysis and its applications, applied mathematics and modeling.

## CONFERENCE SECTIONS AND MINISYMPOSIUMS:

- ✓ Analysis
- ✓ Applied Mathematics
- ✓ Mathematics Education
- ✓ Other Topics (Algebra, Geometry, Topology...)
- ✓ Minisymposium: Functional analysis in interdisciplinary applications
- ✓ Minisymposium: Modern Problems of Mathematical Hydrodynamics
- ✓ Minisymposium: Actual mathematical problems in control theory

## CHAIRS OF THE CONFERENCE:

Prof. **Allaberen Ashyralyev**

Prof. **Tynysbek Kalmenov**

## CO-CHAIRS:

Assoc. Prof. **Abdullah S. Erdogan**, Kazakhstan

Prof. **Makhmud Sadybekov**, Kazakhstan

The main organizer of the conference is

- Near East University, Nicosia (Lefkoşa), Mersin 10, Turkey

The conference is also supported by

- Institute of Mathematics and Mathematical Modeling, Almaty, Kazakhstan

## INVITED SPEAKERS:

- Prof. **Zuhair Nashed**, University of Central Florida, USA
- Prof. **Mokhtar Kirane**, University of La Rochelle, France
- Prof. **Michael Ruzhansky**, Imperial College London, UK
- Prof. **Ljubisa D.R. Kocinac**, University of Nis, Serbia
- Prof. **Alexey Lukashov**, Moscow Institute of Physics and Technology, Russia
- Prof. **Osman Yurekli**, Ithaca College, USA
- Prof. **Agacik Zafer**, American University of the Middle East, Kuwait
- Prof. **Akylbek Kerimbekov**, Kyrgyz-Russian Slavic University, Kyrgyzstan
- Prof. **Tynysbek Kalmenov**, Institute of Mathematics and Mathematical Modelling, Kazakhstan
- Prof. **Stanislav Kharin**, Kazakh-British Technical University, Kazakhstan

06/09/2018 THURSDAY	FIRST DAY - September 06, 2018
	08:30-12:30 REGISTRATION (room *****)
Hall 1	
12:30-14:00	LUNCH

06/09/2018 THURSDAY	FIRST DAY - September 06, 2018 (15.00-16.00)
Hall 1	
14:00-15:00	OPENING CEREMONY Chair: Allaberen ASHYRALYEV, Chairperson of ICAAM 2018
	MS3: Actual mathematical problems in control theory
15.00-15.20	<b>Galina KURINA</b> Projector approach for constructing the zero order asymptotic solution for the singularly perturbed linear-quadratic control problem in a critical case
15.20-15.40	<b>Aleksey Kabanov</b> Canonical transformation and feedback linearization of state-dependent coefficient nonlinear systems
15.40-16.00	<b>Mikhail DMITRIEV</b> A design of an approximate regulator for a weakly nonlinear terminal control problem using the penalty functions method
16.00-18.00	Poster Presentations
18.00-19.00	Opening Cocktail (Sports Bar – Left side of Enteririor)r
19:00-21:30	DINNER

07/09/2017

FRIDAY

SECOND DAY – September 07, 2018  
(09.00-11.00)

Hall 1

Chair: Allaberen Ashyralyev

09:00-09:30

Invited Speaker: Prof. Michael Ruzhansky, Imperial College London, UK

Operator analysis on lattices

09:30-10.00

Invited Speaker: Prof. Mokhtar Kirane, University of La Rochelle, France

Reaction-Diffusion systems with a balance law: The sequel

10.00-10.30

Invited Speaker: Prof. Agacik Zafer, American University of the Middle East, Kuwait

Asymptotic integration of impulsive differential equations via principal and nonprincipal solutions

10:30-11:00 *Coffee break*

07/09/2018

FRIDAY

SECOND DAY – September 07, 2018  
(11.00-14.00)

	Hall 1	MS1: Functional analysis in interdisciplinary applications 1	Hall 2	Section: Applied Mathematics 1	Hall 3	Section: Analysis
11:00-11:15	Chairs: Maksat ASHYRALIYEV, Makhmud SADYBEKOV	<b>Sergey PISKAREV</b> Approximation of fractional semilinear Cauchy problem in a Banach spaces	Chair: Charyyar ASHYRALIYEV	<b>Zafer ÇAKIR</b> On the stable difference scheme for the nonlocal fractional PDE	Chairs: Evren HINÇAL, Nina Nikolaevna SUBBOTINA	<b>Ugur DURAN</b> An Extended Generalized (p,q)-Extensions for the Apostol type Polynomials
11:15-11:30		<b>Aidyn KASSYMOV</b> Cordoba-Cordoba type inequality on homogenous Lie groups		<b>Charyyar ASHYRALIYEV</b> On approximation of first order derivatives of complex-valued functions by finite differences		<b>Zayid ABDULHADİ</b> On the Stability of the solution of a certain nonlinear elliptic partial differential equations
11:30-11:45		<b>Makhmud SADYBEKOV</b> Direct and inverse problems for the Poisson equation with equality of flows on a part of boundary		<b>Ezgi SOYKAN</b> On the numerical solution of advection-diffusion problems with singular source terms		<b>Nina Nikolaevna SUBBOTINA</b> A Solution to Inverse Problems For Dynamic Control Systems
11:45-12:00		<b>Kordan OSPANOV</b> On coercive solvability of a third-order differential equation with oscillating intermediate coefficient		<b>Fathi EMHARAB</b> A Second Order Difference Scheme for the Numerical Processing of Source Identification Terms in Hyperbolic Equations		<b>Mohammad MOMENZADEH</b> Generalized Approximation of complex double sequences of functions of two variables by a new class of positive linear operators
12.00-12.15		<b>Batirkhan Kh.TURMETOV</b> On a generalization of the Neumann problem for the Laplace equation		<b>Mesut URUN</b> Source Identification Problems for Schrödinger Differential and Difference Equations		<b>Mohammad MOMENZADEH</b> Fractional-Ordered boundary value problems with the new generalized fractional integrals
<b>12:30-14:00 LUNCH</b>						

07/09/2018

FRIDAY

SECOND DAY – September 07, 2018  
(14.00-16.00)

Hall 1

Chair: Evren HINÇAL

Invited Speaker: Prof. Ljubisa D.R. Kocinac, University of Nis, Serbia

14:00-14:30

Convergence and function spaces

Invited Speaker: Prof. Alexey Lukashov, Moscow Institute of Physics and Technology, Russia

14:30-15:00

Interpolation by polynomials and rational functions: several intervals, several variables

15:00-15:30

Poster Peresentations

15:30-16:00 *Coffee break*

07/09/2018

FRIDAY

SECOND DAY – September 07, 2018  
(16.00-21.30)

	Hall 1	MS1: Functional analysis in interdisciplinary applications 2	Hall 2	Section: Applied Mathematics 3	Hall 3	Section: Applied Mathematics 2
16.00-16.15	Chair: Maksat ASHYRALIYEV, Kordan OSPANOV	<b>Batirkhan Kh.TURMETOV</b> On Green's function of certain boundary-value problems for the biharmonic equation	Chair: Evren HINÇAL, Neşe DERNEK	<b>Neşe DERNEK</b> Some Parseval-Goldstein type identities for the generalized Macdonald and Hankel transforms	Chair: Charyyar ASHYRALIYEV	<b>Fathi EMHARAB</b> Identification hyperbolic problems with nonlocal conditions
16.15-16.30		<b>Serife FAYDAOGLU</b> An expansion result for the equation of transverse vibration of two-layered composite		<b>Yasemin İSİK</b> The Gauss Decomposition for the Group $SL(2, \mathbb{R})$ and Casimir Operator		<b>Ayman HAMAD</b> Numerical Solution of Nonlocal Elliptic Problems
16.30-16.45		<b>Nusrat RAJABOV</b> Generalized three-dimensional singular integral equation by tube domain		<b>Laura TEMIRBEKOVA</b> Processing of big data in the detection of geochemical anomalies of rare-earth metal deposits		<b>Charyyar ASHYRALIYEV</b> Well-posedness of Neumann-type elliptic overdetermined problem with integral condition
16:45-17:00		<b>Kordan OSPANOV</b> On the spectral properties of a differential operator arising in the theory of Brownian motion		<b>Berikbol TOREBEK</b> Maximum principle for the fractional derivatives and its applications to fractional nonlinear problems		<b>Bilgin KAYMAKAMZADE</b> Numerical solutions of the system of partial differential equations for observing epidemic models
17.00-17.15						

19:00-21:30

DINNER

08/09/2018

SATURDAY

THIRD DAY – September 08, 2018  
(09.00-11.00)

Hall 1

**Chair: Allaberen ASHYRALYEV**

**Invited Speaker: Prof. Zuhair Nashed**, University of Central Florida, USA

09:00-09:30

Perturbation analysis for generalized inverses of linear operators and the role of outer inverses in regularization of ill-posed problems

**Invited Speaker: Prof. Osman Yurekli**, Ithaca College, USA

09:30-10.00

A new integral transform involving Dawson's integral and its applications

**Pleanary Speaker: Prof. Tynysbek Kal'menov**, Institute of Mathematics and Mathematical Modelling, Kazakhstan

10.00-10.30

Boundary conditions for classical potentials

10:30-11:00 *Coffee break*



08/09/2018

SATURDAY

THIRD DAY – September 08, 2018  
(11.00-14.00)

	Hall 1	Section: Applied Mathematics 4	Hall 2	Section: Applied Mathematics 5	Hall 3	Section: Other Topics
11:00-11:15	Chair: Maksat ASHYRALIYEV	<b>Maksat ASHYRALIYEV</b> Numerical solutions of source identification problem for hyperbolic-parabolic equations	Chair: Evren HINÇAL, Agacık ZAFER	<b>Sebahat Ebru DAS</b> Solutions of a Class of Fractional Order Differential Equations By Using Haar Wavelet Collocation Method	Chair: Tynysbek Kalmenov, Bilgen KAYMAKAMZADE	<b>Yagub SHARİFOV</b> Existence and uniqueness of solutions for the first order nonlinear integro-differential equations with three point boundary conditions
11:15-11:30		<b>Kheireddine BELAKROUM</b> A note on stable difference schemes for a third order partial differential equation		<b>Unal UFUKTEPE</b> A Discrete-time Holling Type II Model with Allee and Refuge Effects		<b>Mohammad ALIA</b> An Improved Scenario for IoT Position Based Public-Key Lattice Cryptography
11:30-11:45		<b>Koray TURK</b> On the stable difference scheme for the time delay telegraph equation		<b>Gulistan ISKANDAROVA</b> An application for time-fractional K(m,m) model equations by symmetry method		<b>Ozgun YILDIRIM</b> Invariant difference schemes for sine-Gordon equations
11:45-12:00		<b>Cagin ARIKAN</b> Numerical Solutions of Source Identification Problem for Parabolic-Elliptic Equations		<b>Mohammad MOMENZADEH</b> Unification of q-exponential function and related q-numbers and polynomials		<b>Meltem UZUN</b> On the numerical solution of nonlinear system of coupled sine-Gordon equations
12:00-12.15		<b>Deniz AGİRSEVEN</b> Difference schemes for delay Schrödinger equation		<b>Farouk Tijjani SAAD</b> A Mathematical Cancer Model with BCG Immunotherapy Combined with Immune Checkpoints Inhibitors: an Optimal Control Approach		<b>Abdulgafur Taskin</b> Source Identification Problems for Two Dimensional Neutron Transport Differential and Difference Equations

12:30-14:00

LUNCH

08/09/2018

SATURDAY

THIRD DAY – September 08, 2018  
(14.00-16.00)

<b>Hall 1</b>	<b>Chair: Alexey LUKASHOV</b>
14:00-14:30	<b>Pleanary Speaker: Prof. Stanislav N. Kharin</b> , Kazakh-British Technical University, Kazakhstan Special Functions and Heat Polynomials for the Solution of Free Boundary Problems
14:30-15.00	<b>Invited Speaker: Prof. Akylbek Kerimbekov</b> , Kyrgyz-Russian Slavic University, Kyrgyzstan Integro-differential Bellman-Egorov equation in the synthesis problem of optimal control of thermal processes
15:00-15:30	<b>Poster Peresentations</b>
<i>15:30-16:00 Coffee break</i>	

08/09/2018

SATURDAY

THIRD DAY – September 08, 2018  
(16.00-21.30)

Hall 1

Section: Applied Mathematics 6

Hall 2

MS1: Functional analysis in interdisciplinary applications 3

16.00-16.15

**Fadime DAL** The Solution of One Dimensional Fractional Hyperbolic Partial Differential Equations Using Sumudu Transform

**Okan GERCEK** Numerical Solution of a Two Dimensional Elliptic-Parabolic Equation with Dirichlet-Neumann Condition

16.15-16.30

**Maksim V. KUKUSHKIN** On the spectral properties of some class of non-selfadjoint operators

**Abdizhahan M. SARSENBI** Criterion for the unconditional basicity of the root functions related to the second-order differential operator with involution

16.30-16.45

**Murat TEZER** Vertex magic total labeling of selected trees

**Madi MURATBEKOV** Spectral Properties of the Sturm-Liouville Operator with a Parameter That Changes Sign and Their Usage to the Study of the Spectrum of Differential Operators of Mathematical Physics Belonging to Different Types

16:45-17:00

**Lawrence Adedayo FARINOLA** Six Point Implicit Methods for the Pure Second Derivatives of the Solution of First Type Boundary Value Problem for One Dimensional Heat Equation

**Charyyar ASHYRALYEV** A third order of accuracy difference scheme for Bitsadze-Samarskii type multi-point overdetermined elliptic problem

17:00-17.15

**Yildirim OZDEMİR** On numerical solution of the Schrödinger-parabolic equations

**Suleiman IBRAHIM**, Stability of the third order partial differential equations with time delay

Chair: Deniz AĞIRSEVEN, Evren HINÇAL

Chair: Charyyar ASHYRALYEV

19:00-21:30

DINNER

<b>09/09/2018 SUNDAY</b>	<b>FOURTH DAY - September 09, 2018</b>
<b>Hall 1</b>	
<b>09:00-09:30</b>	<b>CLOSING CEREMONY</b> <b>Chair: Allaberen ASHYRALYEV, Chairperson of ICAAM 2018</b>
	<i>Departure</i>