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Special Issue on Approximation Theory and Special Functions

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Abstract

This special issue consists of 12 selected papers presented at the international conference titled “Approximation Theory and Special Functions - ATSF 2024 Conference – 8th Series”.

1 About the Conference

ATSF is an international conference series organized to bring together researchers from all areas of Approximation Theory and Special Functions to discuss new ideas and new applications. The 8th series was successfully held on September 4-7, 2024, hosted by TOBB Economics and Technology University (Ankara, Türkiye). This prestigious event brought together more than 200 researchers from 30 different countries.



Group Photo of the Participants from the ATSF 2024 Conference
(September 5, 2024, Ankara, Türkiye)

The ATSF 2024 Conference, organized by Oktay Duman (*TOBB Economics and Technology University, Ankara, Türkiye*) and Esra Erkus-Duman (*Gazi University, Ankara, Türkiye*), featured the following invited speakers:

- George A. Anastassiou (*University of Memphis, Memphis, USA*)
- Francesco Dell’Accio (*University of Calabria, Rende, Italy*)
- Yuan Xu (*University of Oregon, Oregon, USA*)
- Ana-Maria Acu (*Lucian Blaga University, Sibiu, Romania*)
- Alexander Goncharov (*Bilkent University, Ankara, Türkiye*)
- Mehmet Ali Ozarslan (*Eastern Mediterranean University, Famagusta, Northern Cyprus*)

During the conference, a total of 172 presentations were delivered, including 165 oral presentations and 7 poster presentations. Visit the following website for details about this event:

<https://sites.google.com/view/atsf2024>.

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2 About the Special Issue

A total of 12 papers presented at the ATSF 2024 Conference have been accepted for publication in this special issue of Dolomites Research Notes on Approximation after the review proces. The contributions are categorized into two main sections as follows.

- **Approximation Theory:**
 - An application of the Euler-MacLaurin summation formula for estimating the order of approximation of sampling-type series by *Marco Cantarini and Danilo Costarelli* (see [1]).
 - Asymptotic expansion of wavelet type generalized Bézier operators by *Huseyin Erhan Altin and Harun Karsli* (see [2]).
 - Approximation results on an infinite interval based on power series statistical sense by *Sevda Yildiz, Kamil Demirci and Fadime Dirik* (see [3]).
 - Multivariate φ -variational approximation of Mellin-type nonlinear integral operators via summability methods by *Ismail Aslan* (see [4]).
 - On Durrmeyer variant of Mittag-Leffler operators by *Prashantkumar Patel* (see [5]).
 - Complex generalized Stancu operators depending on three parameters by *Nursel Cetin* (see [6]).
- **Special Functions:**
 - Appell-type Changhee polynomials in the framework of Fibonomial calculus by *Baris Can Cakir and Esra Erkus-Duman* (see [7]).
 - Generalized k -Cesàro polynomials by *Yahya Cin and Nejla Ozmen* (see [8]):
 - Study of systems of Hammerstein integral equations of the first kind by *Mikhail Bulatov, Hui Liang and Liubov Solovarova* (see [9]).
 - Approximate solutions of boundary value problem for delay nonlinear difference equations with computer realization by *Snezhana Hristova and Rosen Hristev* (see [10]).
 - A new approach for solving minimax problems using new generation smoothing techniques by *Nurullah Yilmaz* (see [11]).
 - Study of systems of Hammerstein integral equations of the first kind by *Ahcene Lateli and Amor Boutaghou* (see [12]).

We believe that this special issue will be a meaningful resource for scholars and professionals in the field, playing a role in the continued progress of Approximation Theory and Special Functions.

Acknowledgements

The outstanding success of the ATSF 2024 Conference was achieved thanks to the dedication and hard work of numerous individuals and institutions. We are truly grateful to the organizing committee, invited speakers, members of the scientific committee, special session coordinators, and all participants for their invaluable support and contributions. Furthermore, we sincerely appreciate the efforts of the editors, contributing authors, and reviewers, whose meticulous work played a crucial role in the preparation of this special issue.

We would like to extend our heartfelt thanks to TOBB Economics and Technology University for graciously hosting the conference, as well as to the Turkish Academy of Sciences and the Scientific and Technological Research Council of Türkiye for their generous support. Finally, we are grateful to the esteemed editors of Dolomites Research Notes on Approximation for providing us with the opportunity to publish this special issue.

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