

VOLUME | ISSUE | YEAR
46 | 1 | 2022
ISSN 1300-0098 • E-ISSN 1303-6149

TURKISH JOURNAL OF
MATHEMATICS

<http://journals.tubitak.gov.tr/math/>



Published by the Scientific and
Technological Research Council of Turkey

TÜBİTAK

TURKISH JOURNAL OF MATHEMATICS

Editor-in-Chief

Adnan **TERCAN**, Hacettepe University, Turkey

Assistant Editor-in-Chief

Aydın **GEZER**, Atatürk University, Turkey

VOLUME 46 • ISSUE 1 • 2022

ISSN 1300-0098 • E-ISSN 1303-6149

SCOPE

- The Turkish Journal of Mathematics is published electronically 6 times a year by the Scientific and Technological Research Council of Turkey (TÜBİTAK).
- Accepts English-language original research manuscripts in the field of mathematics. Review articles are only considered for publication in exceptional circumstances.
- Contribution is open to researchers of all nationalities.

EDITORIAL BOARD

- Alexander **DEGTYAREV**, Bilkent University, Turkey
- Ali Bülent **EKİN**, Ankara University, Turkey
- Ali Sinan **SERTÖZ**, Bilkent University, Turkey
- Anar **DOSİ**, Middle East Technical University, Turkey
- Arne **WINTERHOF**, Johann Radon Institute, Austria
- Bayram **ŞAHİN**, Ege University, Turkey
- Christine **BESSENRODT**, Leibniz University of Hannover, Germany
- Cornelia-Livia **BEJAN**, University of "Al. I. Cuza", Romania
- Eduard **EMELYANOV**, Middle East Technical University, Turkey
- Emrah **KILIÇ**, TOBB University of Economics & Technology, Turkey
- Enrique **ZUAZUA**, Friedrich-Alexander Universität, Germany
- Francis **BONAHON**, University of Southern California, U.S.A.
- Heybetkulu **MUSTAFAYEV**, Van Yüzüncü Yıl University, Turkey
- Hüseyin **DEMİR**, Ondokuz Mayıs University, Turkey
- İlham A. **ALIEV**, Akdeniz University, Turkey
- Jacek **DZIOK**, University of Rzeszow, Poland
- Janusz **SOKOL**, University of Rzeszow, Poland
- Kazım İlhan **İKEDA**, Boğaziçi University, Turkey
- Louis H. **ROWEN**, Bar-Ilan University, Israel
- Marat **AKHMET**, Middle East Technical University, Turkey
- Mario **KRNIC**, University of Zagreb, Croatia
- Mark **LAWSON**, Heriot-Watt University, United Kingdom
- Martin **BOHNER**, Missouri University of Science and Technology, U.S.A.
- Nicolae **POPA**, Institute of Mathematics of the Romanian Academy, Romania
- Pedro A. Guil **ASENSIO**, University of Murcia, Spain
- Peter **DANCHEV**, Bulgarian Academy of Sciences, Bulgaria
- Salvador **ROMAGUERA**, València Polytechnic University, Spain
- Seher Melike **AYDOĞAN**, İstanbul Technical University, Turkey
- Shyuichi **IZUMIYA**, Hokkaido University, Japan
- Snezhana **HRISTOVA**, University of Plovdiv, Bulgaria
- Tamar **DATUASHVILI**, Ivane Javakishvili Tbilisi State University, Georgia
- Toma **ALBU**, Institute of Mathematics of the Romanian Academy, Romania
- Varga K. **KALANTAROV**, Koç University, Turkey
- W. A. **ZUNIGA-GALINDO**, University of Texas Rio Grande Valley, USA, Centro de Investigación y de Estudios Avanzados del I. P. N, Mexico, Mexico
- William **WEISS**, University of Toronto at Mississauga, Canada
- Zekeriya **ARVASI**, Osmangazi University, Turkey

ABSTRACTED

- Science Citation Index Expanded
- Scopus
- Academic Search Complete
- Zentralblatt MATH
- MathSciNet
- Current Index to Statistics

CONTENTS

On some fractional operators generated from Abel's formula	1
Ekin UĞURLU	
k -uniformly multivalent functions involving Liu-Owa q -integral operator	24
Asena ÇETİNKAYA	
Variational geometry for surfaces in conformally flat space	36
Najma MOSADEGH, Esmail ABEDI	
Hyperelastic curves in 3-dimensional lightlike cone	47
Sümeyra Tuğçe KAĞIZMAN, Ahmet YÜCESAN	
Efficient Nyberg-Rueppel type of NTRU digital signature algorithm	59
Ferdi ELVERDİ, Sedat AKLEYLEK, Barış Bülent KIRLAR	
Continuation value computation using Malliavin calculus under general volatility stochastic process for American option pricing	71
Mohamed KHARRAT, Fabian BASTIN	
Hyers-Ulam stability of a certain Fredholm integral equation	87
Alberto SIMÕES, Ponmana SELVAN	
On the application of Euler's method to linear integro differential equations and comparison with existing methods	99
Deniz ELMACI, Nurcan BAYKUŞ SAVAŞANERİL, Fadime DAL, Mehmet SEZER	
On isolated gaps in numerical semigroups	123
Harold J. SMITH	
Geodesics of fiberwise cigar soliton deformation of the Sasaki metric	130
Liana LOTARETS	
A new subclass of certain analytic univalent functions associated with hypergeometric functions ...	145
Alaattin AKYAR	
Examination of eigenvalues and spectral singularities of a discrete Dirac operator with an interaction point	157
Şerifenur CEBESÖY	
Various operators in relation to fractional order calculus and some of their applications to normalized analytic functions in the open unit disk	167
Hüseyin IRMAK	
To the solution of integro-differential equations with nonlocal conditions	177
Kamil R. AIDA-ZADE, Vagif M. ABDULLAYEV	
Upper and lower bounds of the A -Berezin number of operators	189
Mualla Birgül HUBAN	

Numerical solution of a singularly perturbed Fredholm integro differential equation with Robin boundary condition	207
Muhammet Enes DURMAZ, Gabil M. AMIRALIYEV, Mustafa KUDU	
New extension of Alexander and Libera integral operators	225
H. Özlem GÜNEY, Shigeyoshi OWA	
Commutativity degree of crossed modules	242
Zekeriya ARVAS, Elif ILGAZ ÇAĞLAYAN, Alper ODABAŞ	
Classification of some geometric structures on 4-dimensional Riemannian Lie group	257
Esmail PEYGHAN, Davood SEIFIPOUR	
Multivariate approximation in φ -variation for nonlinear integral operators via summability methods	277
İsmail ASLAN	
Sober spaces	299
Mehmet BARAN, Hassan ABUGHALWA	
Improved inequalities related to the A -numerical radius for commutators of operators	311
Kais FEKI	
Finite ordered Γ -hypersemigroups constructed by ordered Γ -semigroups	323
Niovi KEHAYOPULU	