
HACETTEPE JOURNAL OF MATHEMATICS AND STATISTICS

Volume 52 Issue 1 (2023)

E-ISSN: 2651-477X

Honorary Editor

Lawrence Michael Brown

Editor in Chief

Mathematics

Murat Diker (Hacettepe University, Mathematics - hjms@hacettepe.edu.tr)

Statistics

Nursel Koyuncu (Hacettepe University, Statistics - statisticsjhjms@gmail.com)

Associate Editors

Derya Ersel (Hacettepe University, Statistics - dtektas@hacettepe.edu.tr)

Yasemin Kayhan Atılgan (Hacettepe University, Statistics - ykayhan@hacettepe.edu.tr)

Production Editors

Talha Arıkan (Hacettepe University, Mathematics - tarikan@hacettepe.edu.tr)

İsmail Aslan (Hacettepe University, Mathematics - ismail-aslan@hacettepe.edu.tr)

Berke Kaleboğaz (Hacettepe University, Mathematics - bkuru@hacettepe.edu.tr)

Özge Karadağ Ataş (Hacettepe University, Statistics - ozgekaradag@hacettepe.edu.tr)

Esra Korkmaz (Hacettepe University, Mathematics - esrakaratas@hacettepe.edu.tr)

Uğur Sert (Hacettepe University, Mathematics - usert@hacettepe.edu.tr)

O. Oğulcan Tuncer (Hacettepe University, Mathematics - otuncer@hacettepe.edu.tr)

Ayfer Ezgi Yılmaz (Hacettepe University, Statistics - ezgiyilmaz@hacettepe.edu.tr)

Area Editors

Mathematics

Emre Alkan (Number Theory - ealkan@ku.edu.tr)

Angel Del Rio (Algebra, Group Theory - adelrio@um.es)

Naoki Endo (Commutative Rings and Algebras - nendo@rs.tus.ac.jp)

Aysel Erey (Graph Theory and Combinatorics - aysel.erey@gtu.edu.tr)

Sergio Estrada (Homological Algebra - sestrada@um.es)

Mehmet Onur Fen (ODEs, Dynamical Systems and Ergodic Theory - onur.fen@tedu.edu.tr)

Rodrigo Hernandez Gutierrez (General Topology - rod@xanum.uam.mx)

Varga Kalantarov (Partial Differential Equations - vkalantarov@ku.edu.tr)

Serap Öztıp Kaptanođlu (Abstract Harmonic Analysis - oztips@istanbul.edu.tr)

Adam Lecko (Complex Analysis - alecko@matman.uwm.edu.pl)

Emre Mengi (Numerical Analysis - emengi@ku.edu.tr)

Cihan Orhan (Analysis, Summability - orhan@science.ankara.edu.tr)

Abdullah Özbekler (Ordinary Differential Equations - aozbekler@gmail.com)

Ekin Özman (Number Theory, Algebraic Geometry - ekin.ozman@boun.edu.tr)

Mehmetçik Pamuk (Topology, Manifolds and Cell Complexes - mpamuk@metu.edu.tr)

Changguo Shao (Group Theory - : shaoguozi@163.com)

Bülent Ünal (Differential Geometry - bulent@fen.bilkent.edu.tr)

Luca Vitagliano (Differential Geometry - lvitagliano@unisa.it)

Dingguo Wang (Hopf Algebras, Tensor Categories - dgwang@qfnu.edu.cn)

Ash Yıldız (Partial Differential Equations, Integrable systems, Soliton theory - aslipekcan@hacettepe.edu.tr)

Xin Zhang (Graph Theory and Combinatorics - xzhang@xidian.edu.cn)

Shengda Zeng (Partial Differential Equations, Nonlinear Analysis, Control Theory - zengshengda@163.com)
 Yunus E. Zeytuncu (Functions of Several Complex Variables - zeytuncu@umich.edu)

Statistics

Ali Allahverdi (Operational Research & Statistics - ali.allahverdi@ku.edu.kw)
 Olcay Arslan (Robust Statistics - oarslan@ankara.edu.tr)
 Narayanaswamy Balakrishnan (Applied Statistics, Theory of Statistics - bala@mcmaster.ca)
 Adil Baykasoglu (Operational Research - adil.baykasoglu@deu.edu.tr)
 Haydar Demirhan (Categorical Data Analysis, Monte Carlo Simulation - haydar.demirhan@rmit.edu.au)
 Sat Gupta (Sampling, Time Series - sngupta@uncg.edu)
 Tahir Hanalioglu (Stochastic Processes Theory, Probability Theory - tahirkhaniyev@etu.edu.tr)
 Burcu Hudaverdi (Time Series Analysis, Multivariate Statistics - burcu.hudaverdi@deu.edu.tr)
 Zeynep Işıl Kalaylıoglu (Bayesian Inference, Model Selection - kzeynep@metu.edu.tr)
 Hasan Örkücü (Data Envelopment Analysis, Operation Research - hhorkcu@gazi.edu.tr)
 Birdal Şenoğlu (Experimental Design, Statistical Distributions - senoglu@science.ankara.edu.tr)

Contents

Mathematics

Research Articles

1	A general inequality for warped product CR -submanifolds of Kähler manifolds by Abdulqader Mustafa, Cenap Özel, Patrick Linker, Monika Sati and Alexander Pigazzini	1
2	Increasing property and logarithmic convexity concerning Dirichlet beta function, Euler numbers, and their ratios by Feng Qi and Yong-Hong Yao	17
3	On centrally extended Jordan derivations and related maps in rings by Bharat Bhushan, Gurninder Singh Sandhu, Shakir Ali and Deepak Kumar	23
4	New inequalities of Huygens-type involving tangent and sine functions by Ling Zhu and Branko Malešević	36
5	Fibonomial and Lucanomial sums through well-poised q -series by Wenchang Chu and Emrah Kılıç	62
6	Meromorphic functions sharing small functions with their difference polynomial in several variables by Minzhuo Wang and Zhixue Liu	73
7	Uniform integrability of sequences of random elements with respect to weak topologies and weak integrals by Havva Uluçay and Mehmet Ünver	91
8	Actions and semi-direct products in categories of groups with action by Tamar Datuashvili and Tunçar Şahan	103
9	Differential geometric approach of Betchov-Da Rios soliton equation by Yanlin Li, Melek Erdoğan and Ayşe Yavuz	114
10	Existence results for a Dirichlet boundary value problem through a local minimization principle by Armin Hadjian and Juan J. Nieto	126
11	Tripathi connection in Finsler geometry by Amr Soleiman and Ebtsam H. Taha	136

12	Polynomially partial isometric operators <i>by Dijana Mosić</i>	151
13	Semitopological δ -groups <i>by Ebubekir İnan and Mustafa Uçkun</i>	163
14	J -hyperideals and their expansions in a Krasner (m, n) -hyperring <i>by M. Anbarloei</i>	171
15	Characterization of bipolar ultrametric spaces and fixed point theorems <i>by Selim Çetin and Utku Gürdal</i>	185

Statistics

Research Articles

16	Optimal investment and reinsurance strategies for an insurer with stochastic economic factor <i>by Weiwei Shen</i>	197
17	A consistent statistical test based on bivariate random samples <i>by Aysegul Erem and Ismihan Bayramoglu</i>	209
18	On the density of branching Brownian motion <i>by Mehmet Öz</i>	229
19	Assessment of dependent risk using extreme value theory in a time-varying framework <i>by Bükre Yıldırım Külekci, Ugur Karabey and A. Sevtap Selcuk-Kestel</i>	248
20	Ata method's performance in the M4 competition <i>by Sedat Çapar, Hanife Taylan Selamlar, İdil Yavuz, Ali Sabri Taylan and Güçkan Yapar</i>	268