



# Journal of Science

Volume: 20, Issue: 4, Year: 2024

## Contact

Manisa Celal Bayar University

The Graduate School

Campus of Şehit Prof Dr İlhan Varank 45140 Yunusemre – MANİSA, TÜRKİYE

Tel: (00 90) 236 201 27 05

Fax: (00 90) 236 241 21 49

E-mail: [lee.fendergi@cbu.edu.tr](mailto:lee.fendergi@cbu.edu.tr)

Web: <https://dergipark.org.tr/tr/pub/cbayarfbe>

“CBU Journal of Science is indexed by ULAKBIM-TUBITAK TR-DIZIN”



ISSN 1305-130X

E-ISSN 1305-1385

CBUJOS is published quarterly at The Graduate School of Manisa Celal Bayar University

“CBU Journal of Science is a refereed scientific journal”



## Celal Bayar University Journal of Science

**Owner:** Manisa Celal Bayar University, The Graduate School

**Editor in Chief:** Prof. Dr. Kamil ŞİRİN

**Editor:** Assoc. Prof. Dr. İlker Çetin KESKİN

**Layout Editor & Secretary**

Res. Assist. Musa OVALI

Res. Assist. Gencay TEPE

**Subject Editors**

Prof. Dr. Ali KONURALP, Manisa Celal Bayar University, Mathematics

Prof. Dr. Sezai TAŞKIN, Manisa Celal Bayar University, Electrical and Electronics Engineering

Prof. Dr. Kamuran AKTAŞ, Manisa Celal Bayar University, Biology

Prof. Dr. Tuğma ÖZACAR ÖZTÜRK, Manisa Celal Bayar University, Computer Engineering

Assoc. Prof. Dr. Bora CANBULA, Manisa Celal Bayar University, Computer Engineering

Assoc. Prof. Dr. Emriye AY, Manisa Celal Bayar University, Chemical

Assoc. Prof. Dr. Etem KÖSE, Manisa Celal Bayar University, Physics

Assoc. Prof. Dr. İbrahim Fadıl SOYKÖK, Manisa Celal Bayar University, Mechatronics Engineering

Assoc. Prof. Dr. Serhat ARAS, University of Health Science, Medical Physics

**International Scientific Advisory Board**

Prof. Dr. Arianit REKA; State University of Tetova, Macedonia

Prof. Dr. Tomasz NIEMIEC; Warsaw University of Life Sciences, Poland

Prof. Dr. Alyani ISMAIL; Universiti Putra, Malaysia

Prof. Dr. Iuliana APRODU; Dunarea de Jos University, Romania

Assoc. Prof. Can BAYRAM; University of Illinois, USA

Assoc. Prof. Dr. Johanan Christian PRASANN; Madras Christian College, South India

Assoc. Prof. Dr. Nouredine ISSAOUI; Université de Monastir, Tunisie.

Assoc. Dr. Edward Albert UECKERMANN; North-West University, South Africa

Assoc. Dr. Zhi-Qiang ZHANG; The University of Auckland, Holland

Assist. Prof. Dr. Young Ki KIM; Pohang University of Science and Technology, South Korea

Assist. Prof. Dr. Mona MIRHEYDARI; Rutgers University, USA

Assist. Prof. Dr. Donatella ALBANESE; Università Degli Studi Di Salerno, Italy

Assist. Prof. Dr. Jinghua JIANG; The University of Memphis, USA

Assist. Prof. Dr. Jens OLDELAND; University of Hamburg, Germany

Dr. Cheng CHENG; Apple Inc., USA

Dr. Sajedah AFGHAH; Microsoft Corporation, USA

Dr. Jinghua JIANG; The University of Memphis

**National Scientific Advisory Board**

Prof. Dr. Mustafa Ersöz; Selçuk University

Prof. Dr. Oğuz Gürsoy; Mehmet Akif University

Prof. Dr. Mehmet Çevik; İzmir Katip Çelebi University

Prof. Dr. Sezgin Çelik; Yıldız Teknik University

Prof. Dr. Osman Dayan; Çanakkale Onsekiz Mart University

Prof. Dr. Serdar İplikçi; Pamukkale University

Prof. Dr. Yasin Üst; Yıldız Teknik University

Prof. Dr. Mahmut Kuş; Konya Teknik University

Prof. Dr. Ertunç Gündüz; Hacettepe University

Prof. Dr. Tülin Aydemir; Manisa Celal Bayar University

Prof. Dr. Sezai Taşkın; Manisa Celal Bayar University

Prof. Dr. Fatma Şaşmaz Ören; Manisa Celal Bayar University

Prof. Dr. Fatih Selimefendigil; Manisa Celal Bayar University

Prof. Dr. Osman Çulha; Manisa Celal Bayar University

Prof. Dr. Ali Konuralp; Manisa Celal Bayar University

Prof. Dr. Erol Akpınar; Abant İzzet Baysal University

Prof. Dr. Ali Demir; Manisa Celal Bayar University

Prof. Dr. Serap Derman; Yıldız Teknik University

Prof. Dr. Özlem Çağındı; Manisa Celal Bayar University

Assoc. Prof. Dr. Fatih Doğan; Çanakkale Onsekiz Mart University

Assoc. Prof. Dr. Yeliz Yıldırım; Ege University

Assoc. Prof. Dr. Hayati Mamur; Manisa Celal Bayar University

Assoc. Prof. Dr. Mehmet Söylemez; Adıyaman University

Assoc. Prof. Dr. Nil Mansuroğlu; Ahi Evran University

Assist. Prof. Dr. Zeynep Çipiloğlu Yıldız; Manisa Celal Bayar University



---

## **CBU Journal of Science**

Celal Bayar University Journal of Science (CBUJOS) covers scientific studies in the fields of Engineering and Science and publishes accounts of original research articles concerned with all aspects of experimental and theoretical studies. CBU Journal of Science is a refereed scientific journal published four times annually (March, June, September and December) by The Graduate School of Manisa Celal Bayar University. CBU Journal of Science considers the original research articles written in English for evaluation.

CBU Journal of Science is indexed by TUBİTAK ULAKBİM TR-DİZİN, and also is included in DOAJ, Cite Factor, Journal TOCS, Advanced Science Index and OAJI databases. Digital Object Identifier (DOI) number will be assigned for all the articles being published in CBU Journal of Science.

Instructions for Authors and Article Template can be found on the page of Celal Bayar University Journal of Science DergiPark (<https://dergipark.org.tr/tr/pub/cbayarfb>)





**Vol: 20, Issue: 4, Year: 2024**

**Contents**

**Research Article**

**Pages**

- 1. Application of LoRa Technology in Monitoring Solution for Photovoltaic Systems** 1-11  
DOI: 10.18466/cbayarfbe.1526601  
Ercan Aykut\*, Safaa Hawas
- 2. A new method proposal to enhance foreground images against noisy backgrounds: Haytham Thresholding** 12-19  
DOI:10.18466/cbayarfbe.1485592  
Esin Mutlu, Serkan Dereli\*
- 3. Nascency of Physiopathological Activation by The Effect of Genomic Single Nucleotide Exchange Factor in The PNPLA3 rs738409 Genotype of Patients with Hepatocellular Carcinoma** 20-27  
DOI:10.18466/cbayarfbe.1437557  
Anıl Delik\*, Yakup Ülger
- 4. Detection of Atrial Fibrillation with Custom Designed Wavelet-based Convolutional Autoencoder** 28-39  
DOI: 10.18466/cbayarfbe.1508153  
Öykü Eravcı, Nalan Özkurt\*, Özlem Memiş, Evrim Şimşek
- 5. The Effect of Substrate Dielectric Constant and Thickness on Millimeter Wave Band Patch Antenna Performance** 40-59  
DOI:10.18466/cbayarfbe.1514216  
Seda Ermis\*
- 6. Use of Active Carbon Produced by Hydrothermal Method from Agricultural Waste in Methylene Blue Removal** 60-66  
DOI: 10.18466/cbayarfbe.1517079  
Mustafa Boyrazlı , Elif Arancı Öztürk\*, Emrah Çelik , Mehmet Ali Yashı
- 7. The Concept of Parafree Zinbiel Algebras** 67-71  
DOI: 10.18466/cbayarfbe.1455387  
Zekiye Çiloğlu Şahin\*
- 8. Thermal Performance Analysis of a Liquid Cooling Plate for Power Electronics** 72-81  
DOI: 10.18466/cbayarfbe.1528939  
M. Bahattin Akgül\*, Furkan Sinan Erçel
- 9. Using Deep Learning Architectures For Skin Cancer Classification** 82-91  
DOI: 10.18466/cbayarfbe.1513945  
Bafreen Mohammed\*, Özkan İnik
- 10. A Study of A study on chaotic dynamics of deep artificial neural network activated by biological neuron model** 92-100  
DOI: 10.18466/cbayarfbe.1538362  
Erdem Erkan\*
- 11. Synthesis and Characterization of Schiff Base Compounds Containing Mono and Disulfonic Groups** 101-106  
DOI: 10.18466/cbayarfbe.1529884  
İsmet Kaya\*, Feyza Kolcu, Sude Süel
- 12. Unveiling the antioxidant secrets: Phytochemical profiling and bioactive potential of water extracts from Muğla propolis samples** 107-115  
DOI: 10.18466/cbayarfbe.1566363  
Cengiz Sarıkürkcü\*
- 13. The Determination of Molecular Electrostatic Potential and Anticancer Properties of Eugenol: A Theoretical Study** 116-122  
DOI: 10.18466/cbayarfbe.1490879  
Bilge Bıçak\*
- 14. Correction / Erratum Article** 123-123  
DOI: 10.18466/cbayarfbe.1609273  
Vedia Nüket Tirtom\*, Fatma Özkafalı