

# C O M M U N I C A T I O N S

FACULTY OF SCIENCES  
UNIVERSITY OF ANKARA

DE LA FACULTE DES SCIENCES  
DE L'UNIVERSITE D'ANKARA

Series A2-A3: Physical Sciences and Engineering

---

**VOLUME: 64**

**Number: 2**

**YEAR: 2022**

---

Faculty of Sciences, Ankara University  
06100 Beşevler, Ankara –Turkey  
ISSN 1303-6009 E-ISSN 2618-6462

# C O M M U N I C A T I O N S

FACULTY OF SCIENCES  
UNIVERSITY OF ANKARA

DE LA FACULTE DES SCIENCES  
DE L'UNIVERSITE D'ANKARA

Series A2-A3: Physical Sciences and Engineering

**Volume: 64**

**Number: 2**

**Year: 2022**

## Owner

Sait HALICIOĞLU, Dean of Faculty of Sciences

## Editor in Chief

Fatma KARAKOÇ, Ankara University

## Managing Editor

Şengül KURU, Ankara University

## Area Editors

İnanç ŞAHİN (Physics) Ankara University, Turkey	İman ASKERZADE (Askerbeyli) (Computer Eng.) Ankara University, Turkey
Handan OLĞAR (Engineering Physics) Ankara University, Turkey	Ziya TELATAR (Electronic Eng.) Başkent University, Turkey
H. Volkan ŞENAVCI (Astronomy) Ankara University, Turkey	M. Emin CANDANSAYAR (Geophysical Eng.) Ankara University, Turkey

## Editors

Ramiz ALIGULIYEV ANAS, Azerbaijan Murat EFE Ankara University, Turkey	Gabriela CIUPRINA Politehnica University of Bucharest, Romania Osman EROGLU TOBB Economy and Tech. Uni., Turkey	Sara CRUZ Y CRUZ SEPI-UPIITA IPN, Mexico H. Gokhan ILK Ankara University, Turkey
Mustafa E. KAMASAK Istanbul Technical University, Turkey	İlhan KOSALAY Ankara University, Turkey	İsa NAVRUZ Ankara University, Turkey
Javier NEGRO Universidad de Valladolid, Spain	Roy L. STREIT Uni. of Massachusetts at Dartmouth, USA	Hakan TORA Atılım University, Turkey
Miroslav VOZNAK VŠB – Tech.Uni. of Ostrava, Czech Republic	Emre YENGEL King Abdullah Uni. of Sci. and Tech., Saudi Arabia	A. Egemen YILMAZ Ankara University, Turkey
Kutluay YUCE Ankara University, Turkey		

This Journal is published two issues in a year by the Faculty of Sciences, University of Ankara. Articles and any other material published in this journal represent the opinions of the author(s) and should not be construed to reflect the opinions of the Editor(s) and the Publisher(s).

## Correspondence Address:

COMMUNICATIONS  
EDITORIAL OFFICE

Ankara University, Faculty of Sciences,  
06100 Beşevler, ANKARA – TURKEY

**Tel: (90) 312-216 87 00 Fax: (90) 312-216 89 00**

**e-mail:** [commun@science.ankara.edu.tr](mailto:commun@science.ankara.edu.tr)

<http://communications.science.ankara.edu.tr/index.php?series=A2A3>

## Print:

Ankara University Press  
İncitaş Sokak No:10 06510 Beşevler  
ANKARA – TURKEY

# C O M M U N I C A T I O N S

FACULTY OF SCIENCES  
UNIVERSITY OF ANKARA

DE LA FACULTE DES SCIENCES  
DE L'UNIVERSITE D'ANKARA

Series A2-A3: Physical Sciences and Engineering

**Volume: 64**

**Number: 2**

**Year: 2022**

## **Research Articles**

---

G.E. SAĞIR, S. TAŞCIOĞLU, Evaluation of the impact of I/Q imbalance compensation on communication performance .....	66
S.N. KARAHAN, A. KALAYCIOĞLU, Utilization of deep learning architectures for MIMO detection .....	81
L. ÖZBEK, A study on modeling growth model of Adana pigeons .....	95
K. ERDOĞAN, F. ARI, Determination of the surface topography in rill erosion by imaging techniques .....	104
O. TİMUR, A. TEKE, Design and implementation of a microcontroller based split air conditioner control system .....	117
D.E. AYDIN, Y. AR, A method for analyzing suspect-filler similarity using convolutional neural networks .....	129