

APPLIED COMPUTATIONAL ELECTROMAGNETICS SOCIETY JOURNAL

January 2024
Vol. 39 No. 1
ISSN 1054-4887

The ACES Journal is abstracted in INSPEC, in Engineering Index, DTIC, Science Citation Index Expanded, the Research Alert, and to Current Contents/Engineering, Computing & Technology.

The illustrations on the front cover have been obtained from the ARC research group at the Department of Electrical Engineering, Colorado School of Mines

Published, sold and distributed by: River Publishers, Alsbjergvej 10, 9260 Gistrup, Denmark

THE APPLIED COMPUTATIONAL ELECTROMAGNETICS SOCIETY

<http://aces-society.org>

EDITORS-IN-CHIEF

Atef Elsherbeni

Colorado School of Mines, EE Dept.
Golden, CO 80401, USA

Sami Barmada

University of Pisa, ESE Dept.
56122 Pisa, Italy

ASSOCIATE EDITORS

Maokun Li

Tsinghua University
Beijing 100084, China

Wei-Chung Weng

National Chi Nan University, EE Dept.
Puli, Nantou 54561, Taiwan

Paolo Mezzanotte

University of Perugia
I-06125 Perugia, Italy

Mauro Parise

University Campus Bio-Medico of Rome
00128 Rome, Italy

Alessandro Formisano

Seconda Università di Napoli
81031 CE, Italy

Luca Di Rienzo

Politecnico di Milano
20133 Milano, Italy

Yingsong Li

Harbin Engineering University
Harbin 150001, China

Piotr Gas

AGH University of Science and Technology
30-059 Krakow, Poland

Lei Zhao

Jiangsu Normal University
Jiangsu 221116, China

Riyadh Mansoor

Al-Muthanna University
Samawa, Al-Muthanna, Iraq

Long Li

Xidian University
Shaanxi, 710071, China

Sima Noghianian

Commscope
Sunnyvale, CA 94089, USA

Lijun Jiang

University of Hong Kong, EEE Dept.
Hong Kong

Steve J. Weiss

US Army Research Laboratory
Adelphi Laboratory Center (RDRL-SER-M)
Adelphi, MD 20783, USA

Nunzia Fontana

University of Pisa
56122 Pisa, Italy

Shinishihiro Ohnuki

Nihon University
Tokyo, Japan

Jiming Song

Iowa State University, ECE Dept.
Ames, IA 50011, USA

Stefano Selleri

DINFO - University of Florence
50139 Florence, Italy

Kubilay Sertel

The Ohio State University
Columbus, OH 43210, USA

Toni Bjorninen

Tampere University
Tampere, 33100, Finland

Yu Mao Wu

Fudan University
Shanghai 200433, China

Giulio Antonini

University of L'Aquila
67040 L'Aquila, Italy

Santanu Kumar Behera

National Institute of Technology
Rourkela-769008, India

Fatih Kaburcuk

Sivas Cumhuriyet University
Sivas 58140, Turkey

Antonio Musolino

University of Pisa
56126 Pisa, Italy

Daniele Romano

University of L'Aquila
67100 L'Aquila, Italy

Huseyin Savci

Istanbul Medipol University
34810 Beykoz, Istanbul

Abdul A. Arkadan

Colorado School of Mines, EE Dept.
Golden, CO 80401, USA

Alireza Baghai-Wadji

University of Cape Town
Cape Town, 7701, South Africa

Zhixiang Huang

Anhui University
China

Salvatore Campione

Sandia National Laboratories
Albuquerque, NM 87185, USA

Marco Arjona López

La Laguna Institute of Technology
Torreón, Coahuila 27266, Mexico

Amin Kargar Behbahani

Florida International University
Miami, FL 33174, USA

Ibrahim Mahariq

American University of the Middle East
Kuwait and University of
Turkish Aeronautical Association
Turkey

Kaikai Xu

University of Electronic Science
and Technology of China
China

Laila Marzall

University of Colorado, Boulder
Boulder, CO 80309, USA

Sheng Sun

University of Electronic Science and
Tech. of China
Sichuan 611731, China

EDITORIAL ASSISTANTS

Matthew J. Inman
University of Mississippi, EE Dept.
University, MS 38677, USA

Shanell Lopez
Colorado School of Mines, EE Dept.
Golden, CO 80401, USA

EMERITUS EDITORS-IN-CHIEF

Duncan C. Baker
EE Dept. U. of Pretoria
0002 Pretoria, South Africa

Allen Glisson
University of Mississippi, EE Dept.
University, MS 38677, USA

Ahmed Kishk
Concordia University, ECS Dept.
Montreal, QC H3G 1M8, Canada

Robert M. Bevensee
Box 812
Alamo, CA 94507-0516

Ozlem Kilic
Catholic University of America
Washington, DC 20064, USA

David E. Stein
USAF Scientific Advisory Board
Washington, DC 20330, USA

EMERITUS ASSOCIATE EDITORS

Yasushi Kanai
Niigata Inst. of Technology
Kashiwazaki, Japan

Mohamed Abouzahra
MIT Lincoln Laboratory
Lexington, MA, USA

Alexander Yakovlev
University of Mississippi, EE Dept.
University, MS 38677, USA

Levent Gurel
Bilkent University
Ankara, Turkey

Sami Barmada
University of Pisa, ESE Dept.
56122 Pisa, Italy

Ozlem Kilic
Catholic University of America
Washington, DC 20064, USA

Erdem Topsakal
Mississippi State University, EE Dept.
Mississippi State, MS 39762, USA

Alistair Duffy
De Montfort University
Leicester, UK

Fan Yang
Tsinghua University, EE Dept.
Beijing 100084, China

Rocco Rizzo
University of Pisa
56123 Pisa, Italy

Atif Shamim
King Abdullah University of Science and
Technology (KAUST)
Thuwal 23955, Saudi Arabia

William O'Keefe Coburn
US Army Research Laboratory
Adelphi, MD 20783, USA

Mohammed Hadi
Kuwait University, EE Dept.
Safat, Kuwait

Amedeo Capozzoli
Univerita di Naoli Federico II, DIETI
I-80125 Napoli, Italy

Wenxing Li
Harbin Engineering University
Harbin 150001, China

Qiang Ren
Beihang University
Beijing 100191, China

EMERITUS EDITORIAL ASSISTANTS

Khaleb ElMaghoub
Trimble Navigation/MIT
Boston, MA 02125, USA

Kyle Patel
Colorado School of Mines, EE Dept.
Golden, CO 80401, USA

Christina Bonnington
University of Mississippi, EE Dept.
University, MS 38677, USA

Anne Graham
University of Mississippi, EE Dept.
University, MS 38677, USA

Madison Lee
Colorado School of Mines, EE Dept.
Golen, CO 80401, USA

Allison Tanner
Colorado School of Mines, EE Dept.
Golden, CO 80401, USA

Mohamed Al Sharkawy
Arab Academy for Science and Technology, ECE Dept.
Alexandria, Egypt

JANUARY 2024 REVIEWERS

**Intan Sorfina Zainal Abidin
Le Chang
Thippesha D.
Chengzhu Du
Alfredo Gomes Neto
Jesus Gonzalez Dominguez
Pankaj Jha
I. Kathir
Mikko Kokkonen
Lihua Li
Matteo Bruno Lodi
Fabrizio Loreto
Enrique Melgoza**

**Durga Prasad Mishra
Sathishkumar N.
Mahdi Oliaei
Andrew Peterson
Gerardo Ruiz-Ponce
Ajit Kumar Sahoo
Michael Saville
Manthan Shah
M. Mohammadi Shirkolaei
Qiwei Zhan
Xiao Zhang
Wei-Hua Zong**

TABLE OF CONTENTS

A Rapid Single-view Radar Imaging Method with Window Functions
Wen Ming Yu, Yi Ting Yang, Xiao Fei Lu, Chao Yang, Zai Gao Chen, and Tie Jun Cui 1

A New Miniaturized Double Stop-band Frequency Selective Surface
Qiannan Li, Qing Wang, Hui Zhang, Jian-Qiang Hou, and Jun Zhao 9

A Dual-Polarization Broadband Coupling Feed Dipole Antenna Based on Artificial
Magnetic Conductor
Z. N. Jiang, Z. W. Li, and Z. X. Wang 17

A High-gain Low-sidelobe Dual-polarized Broadband Array Antenna
Qi-Lei Zhou, Bo-Wen Zhang, Neng-Wu Liu, and Guang Fu 24

Diplexer Antenna for 5G Full-duplex Application
Hong Quang Nguyen, Trong Toan Do, Dinh Hai Truyen Hoang, Quoc Cuong Nguyen,
and Minh Thuy Le 31

A New Type of Reflective Reconfigurable Electronic Beam Squinting Feed
Bo-Wen Zhang, Liang-Xin Xia, Neng-Wu Liu, and Guang Fu 39

Optimized Ferromagnetic Core Magnetorquer Design and Testing for LEO Nanosatellite
Attitude Control
Gabriel Villalba-Alumbreros, Diego Lopez-Pascual, and Efren Diez-Jimenez 46

Polarization Agile Reconfigurable Rectangular Patch Antenna for Biomedical Applications
Saravanan Manavalan, Balraj Shankarlal, Veeraswamy Radhakrishnan Prakash,
Sathish Eswaramoorthy, and Madasamy Rajmohan 57

Optimization of PMSM for EV based on Vibration and Noise Suppression
Mingwei Zhao, Xiangyu Wang, Lijun Liu, Xiaowei Tu, and Qinghua Yang 64

Research on the Prediction Method of Conducted Interference in Flyback Converters
based on the High-frequency Transformer Model
Mengxia Zhou, Bin Cheng, Jianben Liu, Yakang Pei, Ruining Yao, Yan Liu,
and Feng Li 81