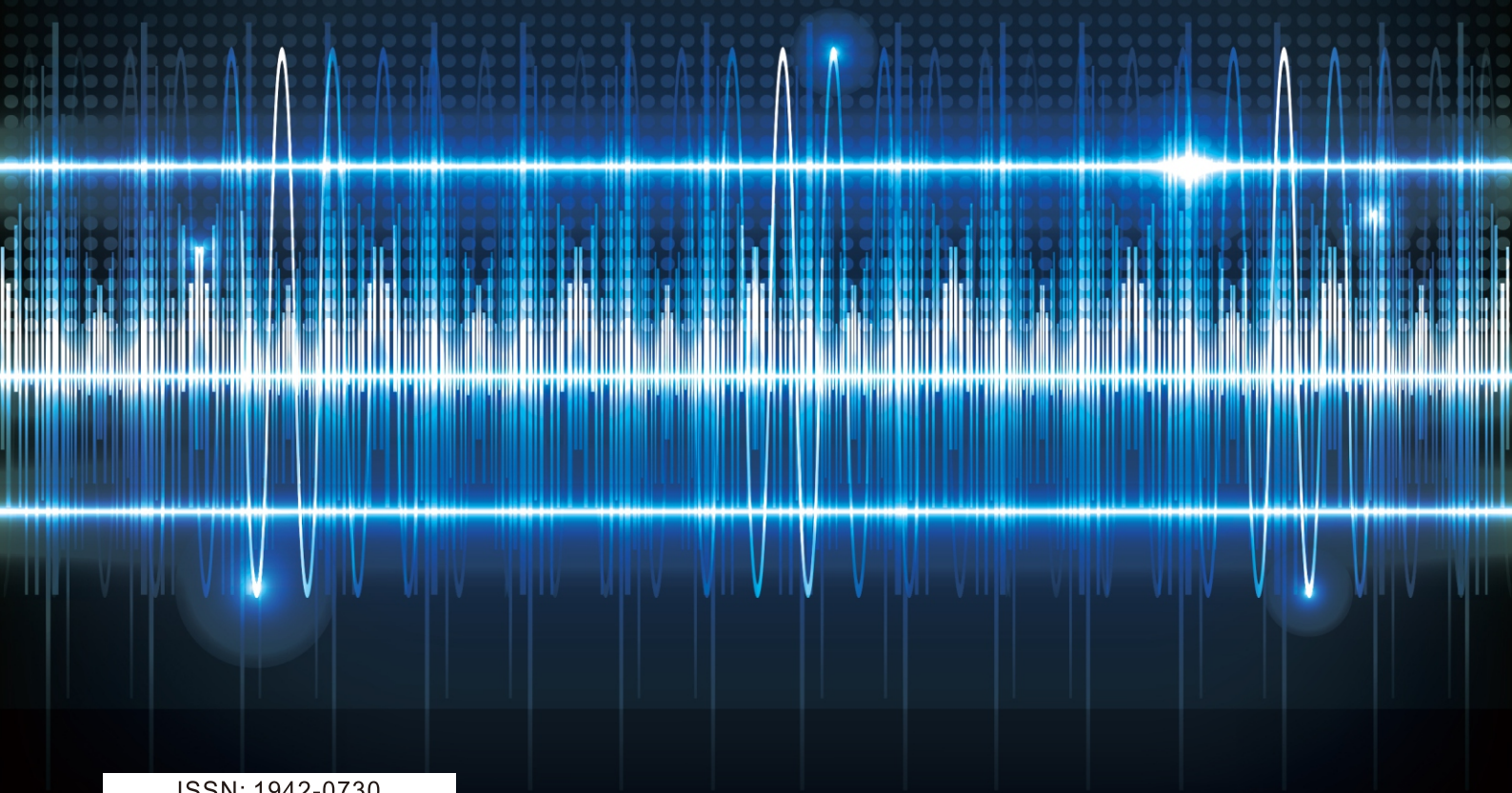


ISSN: 1942-0730 Volume 12, Number 6, June 2020



Journal of Electromagnetic Analysis and Applications



<https://www.scirp.org/journal/jemaa>

JOURNAL EDITORIAL BOARD

ISSN: 1942-0730 (Print)

ISSN: 1942-0749 (Online)

<https://www.scirp.org/journal/jemaa>

Editor-in-Chief

Prof. Yuanzhang Sun

Wuhan University, China

Editorial Advisory Board

Prof. C. C. Chan

University of Hong Kong, China

Prof. Ryuichi Yokoyama

Waseda University, Japan

Editorial Board

Prof. Vladimir N. Binhi

Russian Academy of Sciences, Russia

Prof. Marco Breschi

University of Bologna, Italy

Prof. Iver Hakon Brevik

Norwegian University of Science and
Technology, Norway

Prof. Antonella D'Orazio

Polytechnic of Bari, Italy

Dr. Hosam El-Ocla

Lakehead University, Canada

Prof. Mohamed H. Gaber

Cairo University, Egypt

Prof. Kerim Guney

Nuh Naci Yazgan University, Turkey

Dr. Yuchun Guo

Jiangnan Electronic Communication
Research Institute, China

Prof. Eisuke Hanada

Saga University Graduate School of Science and Engineering,
Japan

Prof. Yahya Salameh Hassan Khraisat

Al-Balqa' Applied University, Jordan

Prof. Isabel Jesus

Institute of Engineering of Porto, Portugal

Prof. Haiduke Sarafian

The Pennsylvania State University, USA

Prof. Yonghua Song

Tsinghua University, China

Prof. Vishnu Srivastava

Central Electronics Engineering Research Institute, India

Prof. Francisco Torrens

Universitat of Valencia, Spain

Prof. Uygun V. Valiev

Mirzo Ulugbek National University of
Uzbekistan (NUUz), Uzbekistan

Prof. Chao-Fu Wang

National University of Singapore, Singapore

Prof. Tham-Choy Yoong

Wawasan Open University, Malaysia

Prof. Zeev Zalevsky

Bar-Ilan University, Israel

Table of Contents

Volume 12 Number 6

June 2020

**General Analytic Solution of the Telegrapher's Equations and the
Resulting Consequences for Electrically Short Transmission Lines**

S. Kühn.....71

Journal of Electromagnetic Analysis and Applications (JEMAA)

Journal Information

SUBSCRIPTIONS

The *Journal of Electromagnetic Analysis and Applications* (Online at Scientific Research Publishing, <https://www.scirp.org/>) is published monthly by Scientific Research Publishing, Inc., USA.

Subscription rates:

Print: \$89 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: sub@scirp.org

SERVICES

Advertisements

Advertisement Sales Department, E-mail: service@scirp.org

Reprints (minimum quantity 100 copies)

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: sub@scirp.org

COPYRIGHT

Copyright and reuse rights for the front matter of the journal:

Copyright © 2020 by Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>

Copyright for individual papers of the journal:

Copyright © 2020 by author(s) and Scientific Research Publishing Inc.

Reuse rights for individual papers:

Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

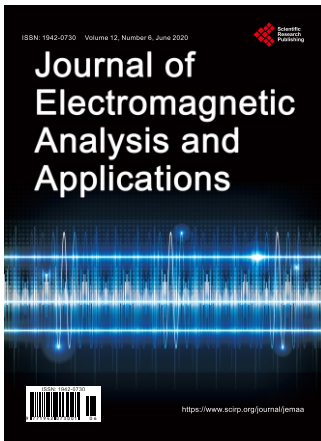
Disclaimer of liability

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: jemaa@scirp.org



Journal of Electromagnetic Analysis and Applications

ISSN: 1942-0730 (Print) ISSN: 1942-0749 (Online)

<https://www.scirp.org/journal/jemaa>

Journal of Electromagnetic Analysis and Applications (JEMAA) is a professional journal in the field of electromagnetic analysis, testing and application. The goal of this journal is to provide an international platform for engineers and academicians all over the world to promote, share, and discuss various new issues and developments in the field of electromagnetics. This journal is edited to encourage deeper understanding and greater effectiveness in theory analysis, testing, numerical calculation and engineering application that relevant electromagnetic fields.

Editor-in-Chief

Prof. Yuanzhang Sun

Wuhan University, China

Subject Coverage

JEMAA publishes four categories of original technical reports: papers, communications, reviews, and discussions. Papers are well-documented final reports of research projects. Communications are shorter and contain noteworthy items of technical interest or ideas required rapid publication. Reviews are synoptic papers on a subject of general interest, with ample literature references, and written for readers with widely varying background. Discussions on published reports, with author rebuttals, form the fourth category of JEMAA publications. Topics of interest include, but are not limited to:

- Antenna Arrays
- Antenna Theory and Applications
- Biological Effects
- Eddy Current Problems
- Electric Power and Grounding (Earth)
- Electric Power Line
- Electrical Machine
- Electrocardiograph (ECG)
- Electroencephalograph (EEG)
- Electromagnetic Breaker
- Electromagnetic Compatibility (EMC)
- Electromagnetic Compatibility and Electromagnetic Environment
- Electromagnetic Devices
- Electromagnetic Field Theory
- Electromagnetic Interferences (EMI)
- Electromagnetic Inverse Problems
- Electromagnetic Launch
- Electromagnetic Material Modelling
- Electromagnetic Measurement Technology and Instruments
- Electromagnetic Nondestructive Testing
- Electromagnetic Numerical Analysis
- Electromagnetic Physics
- Electromagnetic Solid Mechanics
- Electromagnetic Structure Optimization
- Electromagnetism and Biological Tissues
- Electromagnetism and Medical Devices
- Electromagnetism in Medical Applications

- Electromyography
- Environmental Pollution by Electromagnetics
- Fiber Optics
- High Frequency Techniques
- Integrated Optics
- Magnetic Fluid
- Measuring Technique of Radiated Electromagnetic
- Medical Applications
- Moving Conductor Eddy Current Problems
- Multiphysics Coupled Problems
- Noise and Signals
- Noise Reduction
- Optical and Millimeter Wave Techniques
- Printed Circuits
- Quasi-Static Fields
- Radar Measurements and Applications
- Radiated Electromagnetic
- Scattering and Diffraction
- Serges (Thunderbolts or Static Electricity)
- Solid State Devices and Circuits
- Static Fields
- Static Magnetic
- Test Electromagnetic Analysis Method (Team) Workshop Benchmark Problems
- The Problems of the Propagation of Electromagnetic Waves
- Waveguides

Notes for Intending Authors

Submitted papers should not be previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers will be peer reviewed. For more details about the submissions, please access the website.

Website and E-Mail

<https://www.scirp.org/journal/jemaa>

E-mail: jemaa@scirp.org

What is SCIRP?

Scientific Research Publishing (SCIRP) is one of the largest Open Access journal publishers. It is currently publishing more than 200 open access, online, peer-reviewed journals covering a wide range of academic disciplines. SCIRP serves the worldwide academic communities and contributes to the progress and application of science with its publication.

What is Open Access?

All original research papers published by SCIRP are made freely and permanently accessible online immediately upon publication. To be able to provide open access journals, SCIRP defrays operation costs from authors and subscription charges only for its printed version. Open access publishing allows an immediate, worldwide, barrier-free, open access to the full text of research papers, which is in the best interests of the scientific community.

- High visibility for maximum global exposure with open access publishing model
- Rigorous peer review of research papers
- Prompt faster publication with less cost
- Guaranteed targeted, multidisciplinary audience



**Scientific
Research
Publishing**

Website: <https://www.scirp.org>

Subscription: sub@scirp.org

Advertisement: service@scirp.org