

ISSN: 2167-9479

Volume 7, Number 3, September 2018



# International Journal of Modern Nonlinear Theory and Application

ISSN: 2167-9479



[www.scirp.org/journal/ijmnta](http://www.scirp.org/journal/ijmnta)

# Journal Editorial Board

ISSN: 2167-9479 (Print)      ISSN: 2167-9487 (Online)

<http://www.scirp.org/journal/ijmnta>

---

## Editor-in-Chief

Prof. Ahmad M. Harb      German Jordanian University, Jordan

## Editorial Board

Prof. Nabil Mohamed Jabr Abdel-Jabbar	American University of Sharjah, UAE
Dr. Eihab M. Abdel-Rahman	University of Waterloo, Canada
Prof. Ravi P. Agarwal	Texas A&M University-Kingsville, USA
Prof. Ahmad Al-Qaisia	University of Jordan, Jordan
Prof. Jan Awrejcewicz	The Technical University of Lodz, Poland
Prof. Nabil Ayoub	German Jordanian University, Jordan
Prof. Fethi Bin Muhammad Belagcem	Public Authority for Applied Education and Training, Kuwait
Prof. Cristian S. Calude	The University of Auckland, New Zealand
Prof. Seonho Cho	Seoul National University, South Korea
Dr. Prabir Daripa	Texas A&M University, USA
Prof. Bruce Henry	The University of New South Wales, Australia
Dr. Boon Leong Lan	Monash University, Malaysia
Prof. Hongyi Li	Bohai University, China
Dr. C. W. Lim	City University of Hong Kong, China
Prof. Gamal M. Mahmoud	Assiut University, Egypt
Dr. Wenchao Meng	Carleton University, Canada
Prof. Lamine Mili	Virginia Polytechnic Institute and State University, USA
Prof. Zuhair Nashed	University of Central Florida, USA
Dr. Mahammad A. Nurmammadov	Azerbaijan State Pedagogical University, Azerbaijan
Prof. Antonio Palacios	San Diego State University, USA
Dr. Samir M. Shariff	Taibah University, Saudi Arabia
Prof. Guowei Wei	Michigan State University, USA
Prof. Changjin Xu	Guizhou University of Finance and Economics, China
Prof. Pei Yu	University of Western Ontario, Canada

# Table of Contents

**Volume 7    Number 3**

**September 2018**

## **The Application of Cumulants Slices in Fault Diagnosis**

W. B. Wu.....89

# International Journal of Modern Nonlinear Theory and Application (IJMNTA)

## Journal Information

### SUBSCRIPTIONS

The *International Journal of Modern Nonlinear Theory and Application* (Online at Scientific Research Publishing, [www.SciRP.org](http://www.SciRP.org)) is published quarterly by Scientific Research Publishing, Inc., USA.

#### Subscription rates:

Print: \$59 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### SERVICES

#### Advertisements

Advertisement Sales Department, E-mail: [service@scirp.org](mailto:service@scirp.org)

#### Reprints (minimum quantity 100 copies)

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

E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### COPYRIGHT

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

Copyright © 2018 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 © 2018 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: [ijmnta@scirp.org](mailto:ijmnta@scirp.org)



## International Journal of Modern Nonlinear Theory and Application

ISSN: 2167-9479 (Print) ISSN: 2167-9487 (Online)  
<http://www.scirp.org/journal/ijmnta>

**International Journal of Modern Nonlinear Theory and Application (IJMNTA)** is an international peer-reviewed journal dedicated to publishing original papers on all topics related to nonlinear dynamics and its applications such as, electrical, mechanical, civil, and chemical systems and so on. The contributions concerned will be discussion of a practical problem, the formulating nonlinear model, and determination of closed form exact or numerical solutions.

### Editor-in-Chief

Prof. Ahmad M. Harb

German Jordanian University, Jordan

### Editorial Board

Prof. Nabil Mohamed Jabr Abdel-Jabbar  
Dr. Eihab M. Abdel-Rahman  
Prof. Ravi P. Agarwal  
Prof. Ahmad Al-Qaisia  
Prof. Jan Awrejcewicz  
Prof. Nabil Ayoub  
Prof. Fethi Bin Muhammad Belagcem  
Prof. Cristian S. Calude  
Prof. Seonho Cho  
Dr. Prabir Daripa  
Prof. Bruce Henry  
Dr. Boon Leong Lan

Prof. Hongyi Li  
Dr. C. W. Lim  
Prof. Gamal M. Mahmoud  
Dr. Wenchao Meng  
Prof. Lamine Mili  
Prof. Zuhair Nashed  
Dr. Mahammad A. Nurmammadov  
Prof. Antonio Palacios  
Dr. Samir M. Shariff  
Prof. Guowei Wei  
Prof. Changjin Xu  
Prof. Pei Yu

### Subject Coverage

This journal invites original papers and review papers that address the following issues in modern nonlinear theory and its applications. The interested topics that may be covered, but not limited to:

- Application of Modern Nonlinear Theory in:
  - Biology
  - Business
  - Chemical Systems
  - Electrical and Power Systems
  - Fluid Mechanics
  - Mechanical Systems
  - Medicine
  - Physics
- Applied Mechanics
- Bifurcation and Chaos
- Chaos Control
- Classic Control Systems
- Electrical Drives and Power Electronics
- Fractal Order Systems
- High Dimensional Chaos and Applications
- Intelligent Control Systems (Fuzzy, Neural, Genetic...)
- Nonlinear Control
- Nonlinear Differential Equations and Applications
- Nonlinear Dynamic Stability
- Nonlinear Dynamics
- Nonlinear Mathematical Physics
- Nonlinear Optical Physics & Materials
- Nonlinear Oscillations
- Nonlinear Phenomena
- Nonlinear Science and Numerical Simulation
- Power Systems and Energy
- Security in Communication Systems

We are also interested in: 1) Short Reports—2-5 page papers where an author can either present an idea with theoretical background but has not yet completed the research needed for a complete paper or preliminary data; 2) Book Reviews—Comments and critiques.

### Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. For more details about the submission, please access the website.

### Website and E-Mail

<http://www.scirp.org/journal/ijmnta>

E-mail: [ijmnta@scirp.org](mailto:ijmnta@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: <http://www.scirp.org>**

**Subscription: [sub@scirp.org](mailto:sub@scirp.org)**

**Advertisement: [service@scirp.org](mailto:service@scirp.org)**