

# Advances in Pure Mathematics



www.scirp.org/journal/apm

## **Journal Editorial Board**

ISSN 2160-0368 (Print) ISSN 2160-0384 (Online)

http://www.scirp.org/journal/apm

#### Editor-in-Chief

**Prof. Dexing Kong**Zhejiang University, China

#### **Editorial Board**

Dr. Taher S. H. AbdelmonemMansoura University, EgyptDr. Adel Ahmed AttiyaMansoura University, Egypt

Prof. Józef Banas Bronislaw Markiewicz State School of Higher Vocational Education in Jaroslaw, Poland

Prof. Constantin BuseWest University of Timisoara, RomaniaDr. Claudio CuevasFederal University of Pernambuco, Brazil

Prof. Leo DepuydtBrown University, USAProf. Dragan S. DjordjevicUniversity of Nis, SerbiaDr. Ozgur EGECelal Bayar University, TurkeyProf. Ahmed M. A. El-SayedAlexandria University, EgyptProf. Marisa FernandezUniversidad del País Vasco, Spain

Prof. Cristescu Gabriela Aurel Vlaicu University of Arad, Romania

Prof. Hongya Gao Hebei University, China

Prof. Aleksander Grytczuk University of Zielona Góra and Jan Pawel II Western, Poland

Prof. Yuxia GuoTsinghua University, ChinaDr. Sevdzhan HakkaevUniversity of Kansas, USA

Dr. Chengchun HaoChinese Academy of Sciences, ChinaProf. Tianxiao HeIllinois Wesleyan University, USAProf. Wei HeNanjing Normal University, China

Prof. Tingzhu Huang University of Electronic Science & Technology of China, China

Prof. Toshitake KohnoThe University of Tokyo, JapanProf. Vichian LaohakosolKasetsart University, Thailand

Dr. Jingjing MaUniversity of Houston-Clear Lake, USAProf. Elimhan N. MahmudovIstanbul Technical University, Turkey

Dr. Lucia MarinoCatania University, ItalyProf. Ming MeiMcGill University, CanadaDr. M. T. MustafaQatar University, Qatar

Dr. Marek NiezgodaUniversity of Life Sciences in Lublin, PolandProf. Jyotindra C. PrajapatiCharotar University of Science and Technology, India

Dr. Marius Rădulescu Institute of Mathematical Statistics and Applied Mathematics "Gheorghe

Mihoc-Caius Iacob" of the Romanian Academy, Romania

Prof. Jingli RenZhengzhou University, ChinaProf. Bayram SahinInonu University, TurkeyProf. Samir H. SakerMansoura University, Egypt

**Dr. Bessem Samet** Tunis College of Sciences and Techniques, Tunisia

Dr. Yongli SongTongji Universtiy, ChinaProf. Hari M. SrivastavaUniversity of Victoria, CanadaProf. Yeong-Jeu SunI-Shou University, Chinese Taipei

**Dr. Néstor Thome** Universitat Politècnica de València, Spain

Prof. Aydin TiryakiIzmir University, TurkeyProf. Gabor TothRutgers University, USA

Prof. Amitabha TripathiIndian Institute of Technology, IndiaProf. Nodari VakhaniaGeorgian Academy of Sciences, Mexico

Prof. Qingwen Wang Shanghai University, China

Dr. Yanjin Wang Institute of Applied Physics and Computational Mathematics, China

Dr. Jasang Yoon University of Texas Rio Grande Valley, USA

Prof. Mohamed F. Yousif

Dr. Shijun Zheng

The Ohio State University, USA

Georgia Southern University, USA

Prof. Changjiang Zhu South China University of Technology, China



ISSN Online: 2160-0384 ISSN Print: 2160-0368

# **Table of Contents**

Volume 7	Number 7	<b>July 2017</b>
Fuzzy Logic an	d Zadeh Algebra	
P. Kukkuraine	1	353
From Braided 1	nfinitesimal Bialgebras to Braided Lie Bialg	ebras
S X Wang		366

# Advances in Pure Mathematics (APM) Journal Information

#### SUBSCRIPTIONS

The *Advances in Pure Mathematics* (Online at Scientific Research Publishing, <a href="www.SciRP.org">www.SciRP.org</a>) is published monthly by Scientific Research Publishing, Inc., USA.

#### Subscription rates:

Print: \$79 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 © 2017 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 © 2017 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.

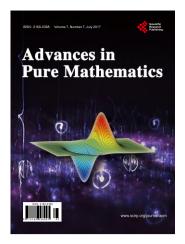
#### Disclaimer of liability

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: apm@scirp.org



# Call for Papers

# **Advances in Pure Mathematics (APM)**

ISSN 2160-0368 (Print) ISSN 2160-0384 (Online) http://www.scirp.org/journal/apm

Advances in Pure Mathematics (APM) is an international journal dedicated to the latest advancements in ordered algebraic structures. The goal of this journal is to provide a platform for scientists and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of ordered algebraic structures.

## Subject Coverage

This journal invites original research and review papers that address the following issues. Topics of interest include, but are not limited to:

- Applied Harmonic Analysis
- Approximation Theory
- Asymptotic Methods
- Bifurcation Theory
- Coding Theory
- Combinatorics
- Complex Analysis
- Convex Analysis
- Difference Equations
- Differential Equations
- Dynamical Systems
- Fixed-Point Theory
- Fourier Analysis
- Fractals
- Fractional Analysis

- Functional Differential Equations
- Fuzzy Mathematics
- Geometry
- Geometry of Banach Spaces
- Integral Equations
- Mathematical Biology, including Population Dynamics
- Mathematical Physics
- Matrix Theory
- Moment Theory
- Number Theory
- Numerical Analysis
- Operator Theory
- Optimal Control
- Optimization Wavelets

- Partial Differential Equations
- Probability
- Reaction-Diffusion Problems, Discrete Mathematics
- Scattering Theory
- Semigroups of Operators
- Signal Theory
- Special Functions
- Statistics
- Stochastic Process
- Topology and Applications
- Transport Theory
- Ultrametric Analysis
- Variational Methods

We are also interested in short papers (letters) that clearly address a specific problem, and short survey or position papers that sketch the results or problems on a specific topic. Authors of selected short papers would be invited to write a regular paper on the same topic for future issues of the APM.

## **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 submissions, please access the website.

E-mail: apm@scirp.org

#### Website and E-Mail

http://www.scirp.org/journal/apm

#### 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





Website: http://www.scirp.org Subscription: sub@scirp.org Advertisement: service@scirp.org