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Latest SCI Journal Papers on FDA

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[Mathematica numerical simulation of peristaltic biophysical transport of a fractional viscoelastic fluid through an inclined cylindrical tube](#)

By: Tripathi, D.; Beg, O. Anwar

COMPUTER METHODS IN BIOMECHANICS AND BIOMEDICAL

ENGINEERING Volume: 18 Issue: 15 Pages: 1648-1657 Published: NOV 18 2015

[A Novel Multistep Generalized Differential Transform Method for Solving Fractional-order Lu Chaotic and Hyperchaotic Systems](#)

By: Al-Smadi, Mohammed; Reihat, Asad; Abu Arqub, Omar; et al.

JOURNAL OF COMPUTATIONAL ANALYSIS AND

APPLICATIONS Volume: 19 Issue: 4 Pages: 713-724 Published: OCT 2015

[A Review of Thermal Conductivity Models for Nanofluids](#)

By: Aybar, Hikmet S.; Sharifpur, Mohsen; Azizian, M. Reza; et al.

HEAT TRANSFER

ENGINEERING Volume: 36 Issue: 13 Pages: 1085-1110 Published: SEP 2 2015

[Some boundary value problems of fractional differential equations with fractional impulsive conditions](#)

By: Xu, Youjun; Liu, Xiaoyou

JOURNAL OF COMPUTATIONAL ANALYSIS AND
APPLICATIONS Volume: 19 Issue: 3 Pages: 426-443 Published: SEP 2015

[On Gruss Type Integral Inequality Involving the Saigo's Fractional Integral Operators](#)

By: Baleanu, D.; Purohit, S. D.; Ucar, F.

JOURNAL OF COMPUTATIONAL ANALYSIS AND
APPLICATIONS Volume: 19 Issue: 3 Pages: 480-489 Published: SEP 2015

[Lower order Fractional Monotone Approximation](#)

By: Anastassiou, George A.

JOURNAL OF COMPUTATIONAL ANALYSIS AND
APPLICATIONS Volume: 19 Issue: 3 Pages: 518-525 Published: SEP 2015

[Solving fuzzy fractional partial differential equations by fuzzy Laplace-Fourier transforms](#)

By: Khodadadi, Ekhtiar; Karabacak, Mesut

JOURNAL OF COMPUTATIONAL ANALYSIS AND
APPLICATIONS Volume: 19 Issue: 2 Pages: 260-271 Published: AUG 2015

[STABILITY IN VOLTERRA INTEGRAL EQUATIONS OF FRACTIONAL ORDER WITH CONTROL VARIABLE](#)

By: Nasertayoob, Payam; Vaezpour, S. Mansour; Saadati, Reza; et al.

JOURNAL OF COMPUTATIONAL ANALYSIS AND
APPLICATIONS Volume: 19 Issue: 2 Pages: 346-358 Published: AUG 2015

[On some self-adjoint fractional finite difference equations](#)

By: Baleanu, Dumitru; Rezapour, Shahram; Salehi, Saeid

JOURNAL OF COMPUTATIONAL ANALYSIS AND
APPLICATIONS Volume: 19 Issue: 1 Pages: 59-67 Published: JUL 2015

[Global Dynamics of a Certain Two-dimensional Competitive System of Rational Difference Equations with Quadratic Terms](#)

By: Kulenovic, M. R. S.; Pilling, M.

JOURNAL OF COMPUTATIONAL ANALYSIS AND
APPLICATIONS Volume: 19 Issue: 1 Pages: 156-166 Published: JUL 2015

[Higher-Order-Statistics-Based Fractal Dimension for Noisy Bowel Sound Detection](#)

By: Sheu, Ming-Jen; Lin, Ping-Yi; Chen, Jen-Yin; et al.

IEEE SIGNAL PROCESSING
LETTERS Volume: 22 Issue: 7 Pages: 789-793 Published: JUL 2015

[Existence results for nonlinear fractional integrodifferential equations with antiperiodic type integral boundary conditions](#)

By: Zuo, Xiaohong; Yang, Wengui

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Conferences

International Conference on Fractional Differentiation and its Applications 2016

<http://www.cdc2015.ctrl.titech.ac.jp/index.php>

----- ICFDA '16, 18-20 July 2016, Novi Sad, Serbia -----

(Contributed by Prof.Virginia Kiryakova)

Dear Colleagues,

Please note the place and time for the next ICFDA, so you can plan in advance your participation. Soon a website for this event will be prepared and details will be given by the local organizers Teodor Atanackovic and Dragan Spasic.

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41th International Conference "Applications of Mathematics in Engineering and Economics 2015"

----- AMEE 2015, 8-23 June 2015, Sozopol, Bulgaria -----

http://oldweb.tu-sofia.bg/eng_new/fpmi/amee15/

The main goal of the series of AMEE conferences is to bring together established experts and young scientists from Bulgaria and from abroad to discuss the modern trends and to exchange views on various applications of mathematics in engineering, physics, economics, biology, etc. The peer-reviewed proceedings of previous AMEE '11,12,13,14 were published in American Institute of Physics Conference Proceedings (last one as Vol. #1631, 2014), indexed in Scopus with SJR = 0.163, and so will be for AMEE'15.

The Program Committee stimulates organizing special sessions as well as discussions concerning the development and use of software innovations in the scientific computing and the student training in this area. **We can possibly organize some mini-session, related to FDA topics.** At earlier AMEE's there were special sessions on integral transforms and special functions, partial differential equations and applications, applied analysis.

I use this occasion to attract your attention to this conference in Bulgaria at a very good place – combining a Black Sea resort with sunny beaches (and the June time is good one to enjoy), ancient city with Byzantine buildings from the 10-14th centuries, old Bulgarian architecture and unique archeological findings, and tasty national cuisine. The (small) town of Sozopol is in the top 3 of the most desirable tourist destinations on the planet (2015) - it was nominated by the World Council for Tourism destination of 2015 and defeated other 158 entries from across the World in the category, selected as one of 3 finalists in competition with Slovenian capital Ljubljana and North-east coast of Taiwan.

The interested participants in possible ``FDA – Integral Transforms and Special Functions - Applied Analysis'' mini-session are pleased to contact me personally, so we can plan it in April (Abstract submission deadline is April 30).

Sincerely yours, Virginia Kiryakova (Member of International Program Committee), virginia@diogenes.bg (subject AMEE 15)

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Call for Papers

A Special Issue in
International Journal of Control

<https://mc.manuscriptcentral.com/tcon>

Special Issue Title

“Applied Fractional Calculus in Modeling, Analysis and Design of Control Systems”

(Contributed by Prof. Y.Q. Chen)

Editor-in-Chief: Eric Rogers

School of Electronics and Computer Science,

University of Southampton, Southampton SO17 1BJ, UK

e-mail: etar@ecs.soton.ac.uk

Guest Editors:

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Mechatronics, Embedded Systems and Automation (MESA) Lab,

School of Engineering, University of California, Merced

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(E-mail: yqchen@ieee.org, or, yangquan.chen@ucmerced.edu)

Dr Clara M. IONESCU

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Systems and Automation, Technologiepark 913, B9052, Zwijnaarde, BELGIUM

(E-mail: ClaraMihaela.Ionescu@UGent.be)

Fractional calculus is about differentiation and integration of non-integer orders. Using integer-order models and controllers for complex natural or man-made systems is simply for our *own* convenience. Using integer order traditional tools for modelling and control of dynamic systems may result in suboptimum performance, that is, using fractional order calculus tools, we can be “*more optimal*” as already documented in the literature. An interesting remark is that, using integer order traditional tools, more and more “anomalous” phenomena are being reported or complained but in applied fractional calculus community, it is now more widely accepted that “anomalous is normal” in nature. We believe, beneficial uses of this versatile mathematical tool of fractional calculus from an engineering point of view are possible and important, and fractional calculus may become an enabler for new science discoveries.

This special issue, with its revealing content and up-to-date developments, joins the utmost proof for this distinctive tendency of adoption of fractional calculus. Since 2012, several such special issues were published in some leading journals which showcase the active interference of fractional calculus to control engineering. It becomes apparent that there is a need to have a special issue in a leading control journal such as International Journal of Control. This focused special issue on control theory and applications is yet another effort to bring forward the latest updates from the applied fractional calculus community. For that we feel very excited and we hope the readers will feel the same.

The aim of this special issue is to show the control engineering research community the usefulness of these fractional order tools in a pragmatic context, in order to stimulate further adoptions and applications. It is our sincere hope that this special issue will become a milestone of a significant trend in the future development of classical and modern control theory. The special issue points out the trend of the fractional order control community to extend and generalize classical and modern control theory to fractional order systems. The contributions may stimulate future industrial applications of the fractional order control leading to simpler, more economical, reliable and versatile systems with increasing complexities.

There is no doubt that with this special issue, the emerging concepts of fractional calculus will have their mathematical abstractness removed and become an attractive tool in the field of control engineering with more “good consequences”. We welcome any contribution within the general scope of the Special Issue theme “*Applied Fractional Calculus in Modeling, Analysis and Design of Control Systems.*”

IMPORTANT DATES: (tentative)

- | | |
|----------------|------------------|
| 15 March 2015: | Call for Papers |
| 1 June 2014: | Paper Submission |
| 1 August 2015: | First Review |

1 October 2015: Paper Acceptance

1 December 2015: Publication online

SUBMISSION GUIDELINES:

Potential authors are encouraged to upload the electronic file of their manuscript through the journal's online submission website:

<https://mc.manuscriptcentral.com/tcon>

Please select the item: **fracspec** on the drop-down menu when you submit papers.

All papers have to be written and submitted according to the International Journal of Control [guidelines](#).

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Special Issue "Complex and Fractional Dynamics" of Entropy (ISSN 1099-4300)

http://www.mdpi.com/journal/entropy/special_issues/fractional-dynamics

(Contributed by Prof. J. A. Tenreiro Machado)

Deadline for manuscript submission: 30 November 2015

Special Issue Editors

Guest Editor

Prof. Dr. J. A. Tenreiro Machado

Department of Electrical Engineering, Institute of Engineering, Polytechnic Institute of Porto,
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Interests: nonlinear dynamics; fractional calculus; modeling; control; evolutionary computing;

genomics; robotics; and intelligent transportation systems

Guest Editor

Prof. Dr. António M. Lopes

Institute of Mechanical Engineering, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias, Porto, Portugal

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Fax: +351 22 5081445

Interests: complex systems; nonlinear dynamics; robotics; control; fractional calculus; simulation

Special Issue Information

Dear Colleagues,

Complex systems are pervasive in many areas of science and we find them everyday and everywhere. Examples include financial markets, highway transportation networks, telecommunication networks, world and country economies, social networks, immunological systems, living organisms, computational systems, and electrical and mechanical structures. Complex systems are often composed of large numbers of interconnected and interacting entities exhibiting much richer global scale dynamics than can be inferred from the properties and behavior of individual entities. Complex systems are studied in many areas of natural sciences, social sciences, engineering, and mathematical sciences.

This Special Issue focuses on original and new research results concerning systems dynamics in science and engineering. Manuscripts regarding complex dynamical systems, nonlinearity, chaos, and fractional dynamics in the thermodynamics or information processing perspectives are solicited. We welcome submissions addressing novel issues, as well as those on more specific topics that illustrate the broad impact of entropy-based techniques in complexity, nonlinearity, and fractionality.

Papers should fit the scope of the journal Entropy and topics of interest include (but are not limited to):

- Complex dynamics- Nonlinear dynamical systems
- Advanced control systems
- Fractional calculus and its applications
- Evolutionary computing
- Finance and economy dynamics
- Fractals and chaos
- Biological systems and bioinformatics
- Nonlinear waves and acoustics
- Image and signal processing
- Transportation systems
- Geosciences

- Astronomy and cosmology
- Nuclear physics

Prof. Dr. J. A. Tenreiro Machado
Prof. Dr. António M. Lopes
Guest Editors

Submission

Manuscripts should be submitted online at www.mdpi.com by registering and logging in to this website. Once you are registered, click here to go to the submission form. Manuscripts can be submitted until the

deadline. Papers will be published continuously (as soon as accepted) and will be listed together on the special issue website. Research articles, review articles as well as communications are invited. For planned papers, a title and short abstract (about 100 words) can be sent to the Editorial Office for announcement on this website.

Submitted manuscripts should not have been published previously, nor be under consideration for publication elsewhere (except conference proceedings papers). All manuscripts are refereed through a peer-review process. A guide for authors and other relevant information for submission of manuscripts is available on the Instructions for Authors page. Entropy is an international peer-reviewed Open Access monthly journal published by MDPI.

Please visit the Instructions for Authors page before submitting a manuscript. The Article Processing Charge (APC) for publication in this open access journal is 1400 CHF (Swiss Francs).

Keywords

dynamics
complex systems
fractional calculus
entropy
information

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Books

Fractional Calculus

R. Herrmann

Book Description

This monograph provides a comprehensive overview of the author's work on the fields of fractional calculus and waves in linear viscoelastic media, which includes his pioneering contributions on the applications of special functions of the Mittag-Leffler and Wright types.

It is intended to serve as a general introduction to the above-mentioned areas of mathematical modeling. The explanations in the book are detailed enough to capture the interest of the curious reader, and complete enough to provide the necessary background material needed to delve further into the subject and explore the research literature given in the huge general bibliography. This book is likely to be of interest to applied scientists and engineers.

More information on this book can be found by the following link:

<http://www.worldscientific.com/worldscibooks/10.1142/8934>

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Journals

Fract. Calc. Appl. Anal.

<http://www.degruyter.com/view/j/fca>

New issue published online: Vol. 18, No. 1, 2015

<http://www.degruyter.com/view/j/fca.2015.18.issue-1/issue-files/fca.2015.18.issue-1.xml>

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Special Issue on "Recent Advances in Fractional Differential Equations"

in Applied Mathematics and Computation, 257(2015), 1-602

<http://www.sciencedirect.com/science/journal/00963003/257>

Edited by Prof. Yong Zhou

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Neurocomputing

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Comments on “The Minkowski's space–time is consistent with differential geometry of fractional order” [Phys. Lett. A 363 (2007) 5–11]

Vasily E. Tarasov

Fractional quantum Hall states as an Abelian group

Ali Nassar

Wavelets method for the time fractional diffusion-wave equation

M.H. Heydari, M.R. Hooshmandasl, F.M. Maalek Ghaini, C. Cattani

Corrigendum to “From fractional exclusion statistics back to Bose and Fermi distributions” [Phys. Lett. A 377 (2013) 2922]

Dragoş-Victor Anghel

Fractional-order formulation of power-law and exponential distributions

A. Alexopoulos, G.V. Weinberg

Coupled fractional nonlinear differential equations and exact Jacobian elliptic solutions for exciton–phonon dynamics

Alain Mvogo, G.H. Ben-Bolie, T.C. Kofané

Finite-time stability analysis of fractional-order neural networks with delay

Xujun Yang, Qiankun Song, Yurong Liu, Zhenjiang Zhao

An efficient method for solving fractional Hodgkin–Huxley model

A.M. Nagy, N.H. Sweilam

A mixed SOC-turbulence model for nonlocal transport and Lévy-fractional Fokker–Planck equation

Alexander V. Milovanov, Jens Juul Rasmussen

Discrete chaos in fractional sine and standard maps

Guo-Cheng Wu, Dumitru Baleanu, Sheng-Da Zeng

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Physica A: Statistical Mechanics and its Applications

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[Synchronization of fractional order complex dynamical networks](#)

Yu Wang, Tianzeng Li

[Fractional correlation functions in simple viscoelastic liquids](#)

R.F.Rodríguez,J.Fujioka,E.SalinasRodríguez

[Parameter estimation for the generalized fractional element network Zener model based on the Bayesian method](#)

Wenping Fan, Xiaoyun Jiang, Haitao Qi

[Exact solution to fractional logistic equation](#)

Bruce J. West

[Fractional Liouville equation on lattice phase-space](#)

Vasily E. Tarasov

[Probabilistic characterization of nonlinear systems under image-stable white noise via complex fractional moments](#)

G. Alotta, M. Di Paola

[No-arbitrage, leverage and completeness in a fractional volatility model](#)

R. Vilela Mendes, M.J. Oliveira, A.M. Rodrigues

[Group analysis and exact solutions of the time fractional Fokker–Planck equation](#)

M.S. Hashemi

[Exact solutions of a modified fractional diffusion equation in the finite and semi-infinite domains](#)

Gang Guo, Kun Li, Yuhui Wang

[Quantum probes for fractional Gaussian processes](#)

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Paper Highlight

A relative entropy method to measure non-exponential random data

YingjieLiang, WenChen

Publication information: YingjieLiang, WenChen, A relative entropy method to measure non-exponential random data, *PhysicsLettersA*,379(2015), 95–99.

<http://www.sciencedirect.com/science/article/pii/S0375960114011529>

Abstract

This paper develops a relative entropy method to measure non-exponential random data in conjunction with fractional order moment, logarithmic moment and tail statistics of

Mittag–Leffler distribution. The distribution of non-exponential random data follows neither the exponential distribution nor exponential decay. The proposed strategy is validated by analyzing the experiment data, which are generated by Monte Carlo method using Mittag–Leffler distribution. Compared with the traditional Shannon entropy, the relative entropy method is simple to be implemented, and its corresponding relative entropies approximated by the fractional order moment, logarithmic moment and tail statistics can easily and accurately detect the non-exponential random data.

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Fractional diffusion on bounded domains

O. Defterli, M. D'Elia, Q. Du, M. Gunzburger, R. Lehoucq, M.M. Meerschaert

Publication information: O. Defterli, M. D'Elia, Q. Du, M. Gunzburger, R. Lehoucq, M.M. Meerschaert, Space-fractional advection-dispersion equations by the Kansa method, *Fract. Calc. Appl. Anal.*, 18(2015), 342-360.

<http://www.degruyter.com/view/j/fca.2015.18.issue-2/fca-2015-0023/fca-2015-0023.xml?format=INT>

Abstract

The mathematically correct specification of a fractional differential equation on a bounded domain requires specification of appropriate boundary conditions, or their fractional analogue. This paper discusses the application of nonlocal diffusion theory to specify well-posed fractional diffusion equations on bounded domains.

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