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Latest SCI Journal Papers on FDA

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[A hybrid algorithm for Caputo fractional differential equations](#)

By: Salgado, G. H. O.; Aguirre, L. A.

COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL
SIMULATION Volume: 33 Pages: 133-140 Published: APR 2016

[KINETIC DERIVATION OF FRACTIONAL STOKES AND STOKES-FOURIER
SYSTEMS](#)

By: Hittmeir, Sabine; Merino-Aceituno, Sara
KINETIC AND RELATED MODELS Volume: 9 Issue: 1 Pages: 105-129 Published: MAR 2016

[Iterative refinement for a system of linear integro-differential equations of fractional type](#)

By: Deif, Sarah A.; Grace, Said R.
JOURNAL OF COMPUTATIONAL AND APPLIED
MATHEMATICS Volume: 294 Pages: 138-150 Published: MAR 1 2016

[Existence and exponential stability for neutral stochastic integrodifferential equations with impulses driven by a fractional Brownian motion](#)

By: Arthi, G.; Park, Ju H.; Jung, H. Y.
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL
SIMULATION Volume: 32 Pages: 145-157 Published: MAR 2016

[The controllability of fractional damped dynamical systems with control delay](#)

By: He, Bin-Bin; Zhou, Hua-Cheng; Kou, Chun-Hai
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL
SIMULATION Volume: 32 Pages: 190-198 Published: MAR 2016

[Large deviations for a fractional stochastic heat equation in spatial dimension R-d driven by a spatially correlated noise](#)

By: El Mellali, Tarik; Mellouk, Mohamed
STOCHASTICS AND DYNAMICS Volume: 16 Article Number:
1650001 Published: FEB 2016

[Hopf lemma for the fractional diffusion operator and its application to a fractional free-boundary problem](#)

By: Roscani, Sabrina D.
JOURNAL OF MATHEMATICAL ANALYSIS AND
APPLICATIONS Volume: 434 Issue: 1 Pages: 125-135 Published: FEB 1 2016

[The Nehari manifold for a fractional p-Laplacian system involving concave-convex nonlinearities](#)

By: Chen, Wenjing; Deng, Shengbing
NONLINEAR ANALYSIS-REAL WORLD APPLICATIONS Volume:
27 Pages: 80-92 Published: FEB 2016

[The long memory and the transaction cost in financial markets](#)

By: Li, Daye; Nishimura, Yusaku; Men, Ming
PHYSICA A-STATISTICAL MECHANICS AND ITS
APPLICATIONS Volume: 442 Pages: 312-320 Published: JAN 15 2016

[Micro-pores and fractures of coals analysed by field emission scanning electron microscopy and fractal theory](#)

By: Pan, Jienan; Wang, Kai; Hou, Quanlin; et al.
FUEL Volume: 164 Pages: 277-285 Published: JAN 15 2016

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Call for Papers

Special Issue Fractional Calculus Applications in Modeling and Design of Control Systems"

-----In the journal of "Journal of Applied Nonlinear Dynamics"

<https://lhscientificpublishing.com/journals/JAND-Default.aspx>

-

This special issue aims at enhancing the idea of using fractional order tools, in order to further stimulate and raise interest regarding the increasing tendency of adopting fractional calculus in applications related to modeling and design of control systems. The main focus of this special issue is directed towards showcasing latest updates from the applied fractional calculus community.

Guest Editors:

Prof Dr Manuel D. ORTIGUEIRA, UNINOVA and DEE/ Faculdade de Ciências e Tecnologia da UNL, Portugal (mdo@fct.unl.pt, mdortigueira@uninova.pt)

Prof Dr Piotr OSTALCZYK, Institute of Applied Computer Science, Lodz University of Technology, Poland (postalcz@p.lodz.pl)

Dr Cristina I. MURESAN, Technical University of Cluj-Napoca, Romania (Cristina.Muresan@aut.utcluj.ro)

IMPORTANT DATES

15 January 2016: Paper Submission

15 March 2016: First Review

15 May 2016: Paper Acceptance

15 June 2016: Publication

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Special Issue on “Fractional Differential, Integral and Integro-Differential Equations Research”

-----In the journal of “Advances in Pure Mathematics”

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

-

Aims & Scope (not limited to)

- Fractional differential equations
- Fractional integral and integro-differential equations
- Nature and kind of fractional derivatives
- Fractional integrals
- Fractional calculus and associated special functions
- Applications of fractional calculus

Important Dates:

Submission Deadline: December 16th, 2015

Guest Editors:

APM Editorial Office

E-mail: apm@scirp.org

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Special Session on APPLIED FRACTIONAL ORDER CALCULUS

----- to be held during the 2016 IEEE International Conference on Automation,
Quality and Testing, Robotics AQTR - THETA 20th edition

www.aqtr.ro

Fractional order differentiation is a generalization of classical integer differentiation to real or complex orders. In the last couple of decades, a more profound understating of fractional calculus, as well as the developments in computing technologies combined with the unique advantages of fractional order differ-integrals in capturing closely complex phenomena, lead to ongoing research regarding fractional calculus and to an increasing interest towards using fractional calculus as an optimal tool to describe the dynamics of complex systems.

This special session aims at presenting some recent developments in the field, focusing, but not limited to: numerical and analytical solutions to fractional order systems, new implementation methods, improvements in fractional order derivatives approximation methods, time response analysis of fractional order systems, the analysis, modeling, control of phenomena in: electrical engineering, electromagnetism, electrochemistry, thermal engineering, mechanics, mechatronics, automatic control, biology, biophysics, physics, etc.

Organizers:

Dr. Cristina I. Muresan

Dr. Eva H. Dulf

Technical University of Cluj-Napoca, Department of Automatic Control,
26-28 Gh. Baritiu Str., 400027 Cluj-Napoca, Romania

Cristina.Muresan@aut.utcluj.ro , Eva.Dulf@aut.utcluj.ro

Dr. Clara Ionescu

Ghent University, Department of Electrical energy, Systems and Automation,
Technologiepark 914, B9052 Zwijnaarde, Belgium, Claramihaela.Ionescu@ugent.be

Deadlines:

Paper submission: January 19, 2016

Notification of acceptance: April 5, 2016

Camera-ready papers: April 19, 2016

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Special Session entitled "Fractional Differentiation and Its applications"

-----during the third international conference CoDIT 2016 to be held in Saint Julian's, Malta in April, 6-8 2016

<http://codit2016.com/>

(Contributed by Mohamed AOUN)

The special session is not only aimed academics scientists but also engineers dealing with fractional differentiation and its applications in control, identification, diagnosis, etc.

Session description

In the last sixty years, fractional calculus had played a very important role in various fields such as physics, chemistry, mechanics, electricity, biology, and economy and control theory. Moreover, it has been found that the dynamical behavior of many complex systems can be properly described by fractional - order models. Such tool has been extensively applied in many fields which has seen an overwhelming growth in the last three decades. The special session is intended to review new developments based on the fractional differentiation, both on theoretical and application aspects. The topics of interest include, but are not limited to: Modelling and Modeling and identification, Signal Processing, Control, Diagnosis, Real applications, Robotics,...

Important Dates:

Submission Deadline: January 07, 2016

Notification of acceptance/reject : February 2, 2016

Deadline for final paper and registration : March 2, 2014

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**Special Issue on "Advances in Fractional Differential Equations (IV):
Time-fractional PDEs"**

-----In the journal of “Computers & Mathematics with Applications”

<http://ees.elsevier.com/camwa/>

(Contributed by Prof. Yong Zhou)

Subject Coverage

- Theory and Numerical Methods for Time-fractional Partial Differential Equations including

- * Fractional Navier–Stokes equations

- * Fractional diffusion equations

- * Fractional wave equations

- * Fractional Schrodinger equations

- * Fractional Heisenberg equations

- * Fractional Fokker–Planck equations

- * Fractional Langevin equations

- * Fractional Hamiltonian systems, etc.

- Modeling using Time-fractional PDEs

- Applications in Physics, Engineering, Biology etc.

Submission Guidelines

Manuscripts should be submitted online through the Elsevier Editorial System (EES) at the following link: <http://ees.elsevier.com/camwa/> . Authors must select "SI: Time-fractional PDEs" when they reach the “Article Type” step in the submission process, and select "Yong Zhou, Managing Guest Editor(SI: Time-fractional PDEs)" as the Requested Editor. All papers will be peer reviewed. There are no page charges.

Important Dates

EES Open for New Submissions: 1 December 2015

Submission Deadline: 30 June 2016

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Books

Intelligent Numerical Methods: Applications to Fractional Calculus

George A. Anastassiou • Ioannis K. Argyros

Book Description

This striking phenomenon motivated the authors to study Newton-like and other similar numerical methods, which involve fractional derivatives and fractional integral operators, for the first time studied in the literature. All for the purpose to solve numerically equations whose associated functions can be also nondifferentiable in the ordinary sense.

That is among others extending the classical Newton method theory which requires usual differentiability of function.

In this monograph we present the complete recent work of the past three years of the authors on Numerical Analysis and Fractional Calculus. It is the natural outgrowth of their related publications. Chapters are self-contained and can be read independently and several advanced courses can be taught out of this book. An extensive list of references is given per chapter. The topics covered are from A to Z of this research area, all studied for the first time by the authors. .

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

<http://link.springer.com/book/10.1007/978-3-319-26721-0>

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Introduction to Fractional and Pseudo-Differential Equations with Singular Symbols

Sabir Umarov

Book Description

Nowadays the number of applications of the theory of Ψ DOSS and fractional order differential equations is rapidly increasing. The author hopes that the selected material reflects the current state and will serve as a good source for those who want to study the theory of Ψ DOSS and fractional differential equations and use their methods in their own research. It seems as though this is the first attempt to present systematically the theory of Ψ International Journal of Non-Linear Mechanicsurnal of Non-Linear Mechanicsurnal of Non-Linear Mechanicsen format. Therefore, the style of the book is introductory. Each chapter supplies a section containing historical and additional notes on related topics for those readers who want further reading.

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

<http://link.springer.com/book/10.1007/978-3-319-20771-1>

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Fractional Partial Differential Equations Numerical Method And Its Application

Book release announcement (20/12/2015)

By the Professor Liu Fawang (Queensland University of Technology, Australia), Professor Zhuang Pinghui (Xiamen University) and Dr. Liu Qingxia (Xiamen University) compiled the "fractional partial differential equations numerical method and its application", Information and Computing Science Series 74, by the scientific publishing agency officially published.

Brief introduction

This book detail describes the numerical methods for fractional partial differential equations, including space, time, time - space fractional partial differential equations, anomalous diffusion equations, modified anomalous diffusion equations, fractional Cable equations , also including the time - space distribution order partial differential equations, multi-term time - space fractional partial differential equations and variable fractional partial differential equations, as well as anomalous diffusion models in human brain tissue, fractional model of the process of diffusion in inhomogeneous media. Numerical methods discussed include finite difference methods, finite element methods, spectral methods, finite volume methods, meshless methods and matrix conversion techniques, detailing how to construct appropriate numerical methods, and

discuss the stability and convergence of numerical methods and numerical analysis techniques, some numerical examples are given. Finally, some applications in medical engineering and cardiac sciences also are presented.

The book is rich in content, language fluency, structured, logical, detailed narrative, facilitating self-study, as a post-graduate study course materials fractional computing, but also for related researchers.

Interested readers 10 or less may be concerned about Dangdang, Jingdong network. Book 10 or more can contact Science Press of Li Jing Branch edit (jingkeli01@163.com, Tel: 010-64019814).

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Journals

International Journal of Non-Linear Mechanics

(selected)

[Fractional Birkhoffian method for equilibrium stability of dynamical systems](#)

Shao-Kai Luo, Jin-Man He, Yan-Li Xu

[Harmonic wavelets based response evolutionary power spectrum determination of linear and non-linear oscillators with fractional derivative elements](#)

Ioannis A. Kougioumtzoglou, Pol D. Spanos

[A fractional non-linear creep model for coal considering damage effect and experimental validation](#)

Jianhong Kang, Fubao Zhou, Chun Liu, Yingke Liu

[Elements of mathematical phenomenology of self-organization nonlinear dynamical systems: Synergetics and fractional calculus approach](#)

Mihailo P. Lazarević

[Discrete fractional order system vibrations](#)

K.R. (Stevanović) Hedrih, J.A. Tenreiro Machado

[First passage of stochastic fractional derivative systems with power-form restoring force](#)

Wei Li, Lincong Chen, Natasa Trisovic, Aleksandar Cvetkovic, Junfeng Zhao

[Modelling the advancement of the impurities and the melted oxygen concentration within the scope of fractional calculus](#)

Abdon Atangana, Dumitru Baleanu

[Constructing transient response probability density of non-linear system through complex fractional moments](#)

Xiaoling Jin, Yong Wang, Zhilong Huang, Mario Di Paola

[Asymptotic analysis of an axially viscoelastic string constituted by a fractional differentiation law](#)

Tianzhi Yang, Bo Fang

[Stationary response of Duffing oscillator with hardening stiffness and fractional derivative](#)

F. Hu, L.C. Chen, W.Q. Zhu

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Communications in Nonlinear Science and Numerical Simulation

(selected)_

[Comments on “Lyapunov stability theorem about fractional system without and with delay](#)

Wenjuan Rui, Xiangzhi Zhang

[Lie symmetries and conservation laws for the time fractional Derrida–Lebowitz–Speer–Spohn equation](#)

Lachezar S. Georgiev

[On chain rule for fractional derivatives](#)

Vasily E. Tarasov

[Modeling and simulation of the fractional space-time diffusion equation](#)

J.F. Gómez-Aguilar, M. Miranda-Hernández, M.G. López-López, V.M. Alvarado-Martínez, D. Baleanu

[Noether symmetries and conserved quantities for fractional Birkhoffian systems with time delay](#)

Xiang-Hua Zhai, Yi Zhang

[Caputo derivatives of fractional variable order: Numerical approximations](#)

Dina Tavares, Ricardo Almeida, Delfim F.M. Torres

[Fractional dynamics in the Rayleigh’s piston](#)

J.A. Tenreiro Machado

[Fractional pseudospectral integration matrices for solving fractional differential, integral, and integro-differential equations](#)

Xiaojun Tang, Heyong Xu

[Stability regions for fractional differential systems with a time delay](#)

Jan Čermák, Jan Horníček, Tomáš Kisela

[The controllability of fractional damped dynamical systems with control delay](#)

Bin-Bin He, Hua-Cheng Zhou, Chun-Hai Kou

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Paper Highlight

A cumulative entropy method for distribution recognition of model error

Y. J. Liang, W. Chen

Publication information: Physica A-Statistical Mechanics and Its Applications, 2015, 419, 729-735.

<http://www.sciencedirect.com/science/article/pii/S0378437114009157>

Abstract

This paper develops a cumulative entropy method (CEM) to recognize the most suitable distribution for model error. In terms of the CEM, the Lévy stable distribution is employed to capture the statistical properties of model error. The strategies are tested on 250 experiments of axially loaded CFT steel stub columns in conjunction with the four national building codes of Japan (AIJ, 1997), China (DL/T, 1999), the Eurocode 4 (EU4, 2004), and United States (AISC, 2005). The cumulative entropy method is validated as more computationally efficient than the Shannon entropy method. Compared with the Kolmogorov–Smirnov test and root mean square deviation, the CEM provides alternative and powerful model selection criterion to recognize the most suitable distribution for the model error.

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Research Group Introduction

Fractional Partial Differential Equations ARO MURI Project -
*Fractional PDEs for Conservation Laws and Beyond: Theory, Numerics,
and Applications*

<http://www.brown.edu/research/projects/muri-fractional-pde/home>

Introduction

Welcome to the website of the research group on Fractional Partial Differential Equations for the ARO MURI project.

We are a multi-university group of mathematicians, engineers, and computer scientists investigating the science of fractional PDEs. Please explore our website to learn about upcoming events, current projects, research objectives, group members, publications, and seminars.

Fractional PDEs at Brown

The MURI Project is led by Professor George Karniadakis, who has established a computational research group in Fractional PDEs at Brown University.

My hope is that if members of the fractional community explore our site, they may contact our principal investigators to pursue collaborations related to our research areas. They can also be made aware of the publications resulting from our grant project in addition to upcoming talks and events hosted by our group.

Funding Agency

This research endeavor is supported by the Department of Defense's Multidisciplinary University Research Initiative (MURI) in coordination with the Army Research Office (ARO).

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The End of This Issue

