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Latest SCI Journal Papers on FDA

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(Searched on April 30, 2019)

Fractional Integration and Fat Tails for Realized Covariance Kernels
By: Opschoor, Anne; Lucas, Andre
JOURNAL OF FINANCIAL ECONOMETRICS Volume: 17 Issue: 1 Pages: 66-90 Published: WIN 2019

Analytical and numerical solutions of a multi-term time-fractional Burgers' fluid model
By: Zhang, Jinghua; Liu, Fawang; Lin, Zeng; etc.
APPLIED MATHEMATICS AND COMPUTATION Volume: 356 Pages: 1-12 Published: SEP 1 2019

An alternating direction implicit scheme of a fractional-order diffusion tensor image registration model
By: Han, Huan; Wang, Zhanqing
APPLIED MATHEMATICS AND COMPUTATION Volume: 356 Pages: 105-118 Published: SEP 1 2019

Properties and distribution of the dynamical functional for the fractional Gaussian noise
By: Loch-Olszewska, Hanna
APPLIED MATHEMATICS AND COMPUTATION Volume: 356 Pages: 252-271 Published: SEP 1 2019

Haar wavelet method for approximating the solution of a coupled system of fractional-order integral-differential equations
By: Xie, Jiaquan; Wang, Tao; Ren, Zhongkai; etc.
MATHEMATICS AND COMPUTERS IN SIMULATION Volume: 163 Pages: 80-89 Published: SEP 2019

Necessary and sufficient conditions for the dynamic output feedback stabilization of fractional-order systems with order 0 < alpha < 1
By: Guo, Ying; Lin, Chong; Chen, Bing; etc.
SCIENCE CHINA-INFORMATION SCIENCES Volume: 62 Issue: 9 Document number: 199201 Published: SEP 2019

DYNAMICS OF NON-AUTONOMOUS FRACTIONAL STOCHASTIC GINZBURG-LANDAU EQUATIONS WITH MULTIPLICATIVE NOISE
By: Lan, Yun; Shu, Ji
COMMUNICATIONS ON PURE AND APPLIED ANALYSIS Volume: 18 Issue: 5 Pages: 2409-2431 Published: SEP 2019

GLOBAL ASYMPTOTIC STABILITY OF TRAVELING WAVES TO THE ALLEN-CAHN EQUATION WITH A FRACTIONAL LAPLACIAN
By: Ma, Luyi; Niu, Hong-Tao; Wang, Zhi-Cheng
COMMUNICATIONS ON PURE AND APPLIED ANALYSIS Volume: 18 Issue: 5 Pages: 2457-2472 Published: SEP 2019

EXISTENCE, UNIQUENESS AND REGULARITY OF THE SOLUTION OF THE TIME-FRACTIONAL FOKKER PLANCK EQUATION WITH GENERAL FORCING
By: Le, Kim-Ngan; Mclean, William; Stynes, Martin
COMMUNICATIONS ON PURE AND APPLIED ANALYSIS Volume: 18 Issue: 5 Pages: 2789-2811 Published: SEP 2019

GROUND STATE SOLUTIONS FOR FRACTIONAL SCALAR FIELD EQUATIONS UNDER A GENERAL CRITICAL NONLINEARITY
By: Alves, Claudianor O.; Figueiredo, Giovany M.; Siciliano, Gaetano

COMMUNICATIONS ON PURE AND APPLIED ANALYSIS Volume: 18 Issue: 5 Pages: 2199-2215 Published: SEP 2019

Mean-field anticipated BSDEs driven by fractional Brownian motion and related stochastic control problem
By: Douissi, Soukaina; Wen, Jiaqiang; Shi, Yufeng
APPLIED MATHEMATICS AND COMPUTATION Volume: 355 Pages: 282-298 Published: AUG 15 2019

Finite element simulation and efficient algorithm for fractional Cahn-Hilliard equation
By: Wang, Feng; Chen, Huanzhen; Wang, Hong
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS Volume: 356 Pages: 248-266 Published: AUG 15 2019

Error estimate of finite element/finite difference technique for solution of two-dimensional weakly singular integro-partial differential equation with space and time fractional derivatives
By: Dehghan, Mehdi; Abbaszadeh, Mostafa
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS Volume: 356 Pages: 314-328 Published: AUG 15 2019

Well-posedness and EM approximations for non-Lipschitz stochastic fractional integro-differential equations
By: Dai, Xinjie; Bu, Weiping; Xiao, Aiguo
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS Volume: 356 Pages: 377-390 Published: AUG 15 2019

A robust kernel-based solver for variable-order time fractional PDEs under 2D/3D irregular domains
By: Fu, Zhuo-Jia; Reutskiy, Sergiy; Sun, Hong-Guang; etc.
APPLIED MATHEMATICS LETTERS Volume: 94 Pages: 105-111 Published: AUG 2019

On the solutions of (2+1)-dimensional time-fractional Schrodinger equation
By: Li, Chao; Guo, Qilong; Zhao, Meimei
APPLIED MATHEMATICS LETTERS Volume: 94 Pages: 238-243 Published: AUG 2019

Regularity properties of the solution to a stochastic heat equation driven by a fractional Gaussian noise on S-2
By: Lan, Xiaohong; Xiao, Yimin
JOURNAL OF MATHEMATICAL ANALYSIS AND APPLICATIONS Volume: 476 Issue: 1 Pages: 27-52 Published: AUG 1 2019

A new computational method based on optimization scheme for solving variable-order time fractional Burgers' equation
By: Hassani, Hossein; Naraghirad, Eskandar
MATHEMATICS AND COMPUTERS IN SIMULATION Volume: 162 Pages: 1-17 Published: AUG 2019

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Call for Papers

Training school on Computational Methods for Fractional-Order Problems

(Bari (Italy), July 22-26 2019)

A training school on Computational Methods for Fractional-Order Problems will be held in Bari (Italy) on July 22-26 2019.

The aim of the Training School is to provide to young researchers and PhD students the background for understanding the mathematics beyond operators of non-integer order and devise accurate and reliable computational methods. In particular, the development of numerical software for the effective treatment of fractional differential equations will be one of the main assets of the training school with the possibility of organizing some laboratory tutorials.

The Training School is an activity of the Cost Action CA 15225 Fractional Systems and there is no admission fee but the number of places is limited. Some grants to support the participation from European countries are available.

Lecturers of the school will be: Kai Diethelm (Germany), Roberto Garrappa (Italy), Guido Maione (Italy) Maria Luisa Morgado (Portugal), Marina Popolizio (Italy), Magda Stela Rebelo (Portugal), Abner J. Salgado (USA), Martin Stynes (China), Yubin Yan (UK)

Further information at:
https://fractional-systems.eu/ts-2019/
https://www.dm.uniba.it/Members/garrappa/CA-TS-2019

The deadline for applications is May 25, 2019

Scientific and organizing Committee

prof. Roberto Garrappa (chair)
prof. Kai Diethelm
prof. Paolo Lino
prof. Guido Maione
prof. Tiziano Politi
prof. Marina Popolizio

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Books

HAUSDORFF CALCULUS: Applications to Fractal Systems

(Editors: Yingjie Liang, Wen Chen, Wei Cai)

Details: https://www.degruyter.com/view/product/506187#?tdsourcetag=s_pctim_aiomsg

Introduction

This book introduces the fundamental concepts, methods, and applications of Hausdorff calculus, with a focus on its applications in fractal systems. Topics such as the Hausdorff diffusion equation, Hausdorff radial basis function, Hausdorff derivative nonlinear systems, PDE modeling, statistics on fractals, etc. are discussed in detail. It is an essential reference for researchers in mathematics, physics, geomechanics, and mechanics.

-Presents the theory and applications of Hausdorff calculus.
-Covers applications in dynamics, statistics, mechanics, and computation.
-Of interest to mathematicians and physicists as well as to engineers.

Chapters

-Introduction

-Hausdorff diffusion equation

-Statistics on fractals

-Lyapunov stability of Hausdorff derivative non-linear systems

-Hausdorff radial basis function

-Hausdorff PDE modeling

-Local structural derivative

-Perspectives

The Contents is available at: https://www.degruyter.com/view/product/506187#?tdsourcetag=s_pctim_aiomsg

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Journals

Applied Mechanics Reviews

(Selected)

A Survey on Fractional Derivative Modeling of Power-Law Frequency-Dependent Viscous Dissipative and Scattering Attenuation in Acoustic Wave Propagation

Wei Cai; Wen Chen; Jun Fang; Sverre Holm

Application of Fractional Calculus for Dynamic Problems of Solid Mechanics: Novel Trends and Recent Results

Yuriy A. Rossikhin; Marina V. Shitikova

Reflections on Two Parallel Ways in the Progress of Fractional Calculus in Mechanics of Solids

Yuriy A. Rossikhin

Finite Element Analysis of Beams With Constrained Damping Treatment Modeled Via Fractional Derivatives

Luis E. Suárez; Arsalan Shokooh; José Arroyo

Applications of Fractional Calculus to Dynamic Problems of Linear and Nonlinear Hereditary Mechanics of Solids

Yuriy A. Rossikhin; Marina V. Shitikova

Response of Systems With Damping Materials Modeled Using Fractional Calculus

L. Suarez; A. Shokooh

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Journal of Applied Mechanics

(Selected)

Time-Dependent Decay Rate and Frequency for Free Vibration of Fractional Oscillator

Y. M. Chen; Q. X. Liu; J. K. Liu

Stationary Response of Multidegree-of-Freedom Strongly Nonlinear Systems to Fractional Gaussian Noise

Qiang Feng Lü; Mao Lin Deng; Wei Qiu Zhu

Galerkin Scheme-Based Determination of Survival Probability of Oscillators With Fractional Derivative Elements

Pol D. Spanos; Alberto Di Matteo; Yezeng Cheng; Antonina Pirrotta; Jie Li

Responses of Linear and Nonlinear Oscillators to Fractional Gaussian Noise With Hurst Index Between 1/2 and 1

Mao Lin Deng; Wei Qiu Zhu

A Modified Fractional Calculus Approach to Model Hysteresis

Mohammed Rabius Sunny; Rakesh K. Kapania; Ronald D. Moffitt; Amitabh Mishra; Nakhiah Goulbourne

A Nonlinear Rubber Material Model Combining Fractional Order Viscoelasticity and Amplitude Dependent Effects

N. Gil-Negrete; J. Vinolas; L. Kari

Response of a Helix Made of a Fractional Viscoelastic Material

M. Ostoja-Starzewski; H. Shahsavari

Dynamic Viscoelastic Rod Stability Modeling by Fractional Differential Operator

D. Ingman; J. Suzdalnitsky

Analytical Solution of a Dynamic System Containing Fractional Derivative of Order One-Half by Adomian Decomposition Method

S. Saha Ray; B. P. Poddar; R. K. Bera

An Eigenvector Expansion Method for the Solution of Motion Containing Fractional Derivatives

L. E. Suarez; A. Shokooh

On the Appearance of the Fractional Derivative in the Behavior of Real Materials

P. J. Torvik; R. L. Bagley

Applications of Fractional Calculus to the Theory of Viscoelasticity

R. C. Koeller

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Paper Highlight

Can we split fractional derivative while analyzing fractional differential equations?

Guotao Wang, Ke Pei, Ravi P. Agarwal, Lihong Zhang, Bashir Ahmad

Publication information: Communications in Nonlinear Science and Numerical Simulation, Volume 76, September 2019, Pages 12-24.

https://www.sciencedirect.com/science/article/pii/S1007570419301121/pdfft?md5=57c698aedb3d94bbf8209624c2c1450b&pid=1-s2.0-S1007570419301121-main.pdf

Abstract

Fractional derivatives are generalization to classical integer-order derivatives. The rules which are true for classical derivative need not hold for the fractional derivatives. For example, it is proved in the literature that we cannot simply add the fractional orders α and β in $\mathrm{D}^\alpha \mathrm{D}^\beta$ to produce the fractional derivative $\mathrm{D}^{\alpha+\beta}$ of order $\alpha+\beta$, in general. In this article we discuss the details of such compositions and propose the conditions to split a linear fractional differential equation into systems involving lower order derivatives. We provide some examples, which show that the conditions of the related results in the literature are sufficient but not necessary. Further, we point out that the fractional differential equations formed using the derivatives which satisfy the composition rule $\mathrm{D}^\alpha \mathrm{D}^\beta=\mathrm{D}^\beta\mathrm{D}^\alpha=\mathrm{D}^{\alpha+\beta}$ produce only a trivial solution.

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Inverse Mittag-Leffler stability of structural derivative nonlinear dynamical systems

Dongliang Hu, Wen Chen, Yingjie Liang

Publication information: Chaos, Solitons & Fractals, Volume 123, June 2019, Pages 304-308

https://www.sciencedirect.com/science/article/pii/S0960077918306003/pdfft?md5=2c2a29262d001065e5361aae373c4a5f&pid=1-s2.0-S0960077918306003-main.pdf

Abstract

The logarithmic time evolution is widely observed in laboratory and field measurements. However, logarithmic stability has not been well considered till now. In this paper, the definition of Lyapunov stability, including logarithmic and inverse Mittag-Leffler stabilities, is proposed. And via the Lyapunov direct method, the stability of nonlinear dynamical systems based on the structural derivative is investigated. Furthermore, the comparison principle based on the structural derivative is presented in order to obtain the stability conditions for nonlinear dynamical systems. Finally, two demonstrative examples are given to test the proposed stability concept.

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