FDA Express Vol. 27, No. 2, May 30, 2018

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Editors: http://jsstam.org.cn/fda/Editors.htm
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PDF download: http://em.hhu.edu.cn/fda/Issues/FDA_Express_Vol27_No2_2018.pdf

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Latest SCI Journal Papers on FDA

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(Searched on May 30, 2018)

On the Cauchy problem for the nonlinear Schrodinger equations including fractional dissipation with variable coefficient
By: Darwich, Mohamad
MATHEMATICAL METHODS IN THE APPLIED SCIENCES Volume: 41 Issue: 8 Pages: 2930-2938 Published: 2018-May-30

A class of time-fractional reaction-diffusion equation with nonlocal boundary condition
By: Zhou, Yong; Shangerganesh, L.; Manimaran, J.; et al.
MATHEMATICAL METHODS IN THE APPLIED SCIENCES Volume: 41 Issue: 8 Pages: 2987-2999 Published: 2018-May-30

Hadamard and Fejer-Hadamard inequalities for extended generalized fractional integrals involving special functions
By: Kang, Shin Min; Farid, Ghulam; Nazeer, Waqas; et al.
JOURNAL OF INEQUALITIES AND APPLICATIONS Article Number: 119 Published: MAY 18 2018

Fractional linear viscoelastic constitutive relations of anhydride-cured thermosetting rubber-like epoxy asphalt binders
By: Wu, Qiang; Wang, Chong; Lang, Rui; et al.
CONSTRUCTION AND BUILDING MATERIALS Volume: 170 Pages: 582-590 Published: MAY 10 2018

A multi-branch thermoviscoelastic model based on fractional derivatives for free recovery behaviors of shape memory polymers
By: Fang Changqing; Leng Jinsong; Sun Huiyu; et al.
MECHANICS OF MATERIALS Volume: 120 Pages: 34-42 Published: MAY 2018

Boundary layer flow of fractional Maxwell fluid over a stretching sheet with variable thickness
By: Liu, Lin; Liu, Fawang
APPLIED MATHEMATICS LETTERS Volume: 79 Pages: 92-99 Published: MAY 2018

Nonlocal discrete diffusion equations and the fractional discrete Laplacian, regularity and applications
By: Ciaurri, Oscar; Roncal, Luz; Stinga, Pablo Raul; et al.
ADVANCES IN MATHEMATICS Volume: 330 Pages: 688-738 Published: MAY 25 2018

Inverse problem for a space-time fractional diffusion equation: Application of fractional Sturm-Liouville operator
By: Ali, Muhammad; Aziz, Sara; Malik, Salman A.
MATHEMATICAL METHODS IN THE APPLIED SCIENCES Volume: 41 Issue: 7 Pages: 2733-2747 Published: MAY 15 2018

A compact fourth-order in space energy-preserving method for Riesz space-fractional nonlinear wave equations
By: Macias-Diaz, J. E.; Hendy, A. S.; De Staelen, R. H.
APPLIED MATHEMATICS AND COMPUTATION Volume: 325 Pages: 1-14 Published: MAY 15 2018

Time and Space Fractional Diffusion in Finite Systems
By: Raghavan, R.; Chen, C.
TRANSPORT IN POROUS MEDIA Volume: 123 Issue: 1 Pages: 173-193 Published: MAY 2018

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Call for Papers

10th Workshop SDS 2018: “Structural Dynamical Systems: Computational Aspects”

(12-15 June 2018, Capitolo (Monopoli) - Bari, Italy)

https://sites.google.com/site/workshopsds2018

Description

The workshop will take place at the Hotel Villaggio Porto Giardino in Capitolo-Monopoli (Italy). Monopoli is a seaside city and Capitolo is famous for its white sand beaches with crystal clear water in a walking distance from the hotel. The aim of the workshop SDS is to bring together researchers from different areas (in particular Mathematics, Physics and Engineering) and give them the opportunity of discussing, in a friendly atmosphere, recent developments in computational and theoretical methods for Dynamical Systems and their applications. A special session devoted to “Fractional Order Systems” is planned. Prof. Kai Diethelm accepted to deliver the plenary talk introducing the session. A selection of works presented during the workshop will be published on a special issue of the journal “Applied Numerical Mathematics”. Your participation to this workshop and the presentation of a contribution is highly welcome.

Important Deadlines :

Abstract submission – 30 March 2018;

Notification of acceptance – 20 April 2018;

Early Registration – 30 April 2018;

Late registration – 1 May 2018.

Standard conference Fees (early registration) – EUR 200.

For further information you can see from the following website: https://sites.google.com/site/workshopsds2018

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Books

Fractional Derivative Approach in Modeling of a Nonlinear Coil for Ferroresonance Analyses

Łukasz Majka

Book Description

The article presents the results of the computations performed for a ferroresonant circuit. Two models for the coil with a ferromagnetic core were used in the simulations. The conventional parallel model and one applying a fractional derivative. Calculations of applied model parameters were obtained through estimations based on measured and recorded steady-state waveforms of currents and voltages of the particular circuit components. The experiment was conducted over a wide range of levels of the supply voltage. During the experiment, the coil worked in the saturation conditions of the magnetic core, but intentionally without reaching the point where ferroresonance occurs. Measurements and recordings were made using the digital interference recorder RZ-1 developed by Kared (Gdansk). Parameter estimations and simulations were performed in Matlab.

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

https://link.springer.com/chapter/10.1007/978-3-319-78458-8_13

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Applications of Fractional Operators to Groundwater Models

Abdon Atangana

Book Description

This chapter presents models of groundwater flow for steady and unsteady state within a confined, unconfined and leaky aquifers within the scope of fractional differentiation and integration. For each model using fixed-theorem, the analysis of existence and uniqueness solution is presented in detail. The numerical and analytical solutions are derived and finally the limitation of fractional differentiation and integration to groundwater flow problems are listed.

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

https://www.sciencedirect.com/science/article/pii/B9780128096703000072

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Journals

Fractional Calculus and Applied Analysis

(Vol. 21, No. 1 (2018))

From continuous time random walks to the generalized diffusion equation

Sandev, Trifce / Metzler, Ralf / Chechkin, Aleksei

Properties of the Caputo-Fabrizio fractional derivative and its distributional settings

Atanacković, Teodor M. / Pilipović, Stevan / Zorica, Dušan

Exact and numerical solutions of the fractional Sturm – Liouville problem

Klimek, Malgorzata / Ciesielski, Mariusz / Blaszczyk, Tomasz

Some stability properties related to initial time difference for Caputo fractional differential equations

Agarwal, Ravi / Hristova, Snezhana / O’ Regan, Donal

On an eigenvalue problem involving the fractional (s, p)-Laplacian

Fărcăşeanu, Maria

Diffusion entropy method for ultraslow diffusion using inverse Mittag-Leffler function

Liang, Yingjie

Time-fractional diffusion with mass absorption under harmonic impact

Povstenko, Yuriy / Kyrylych, Tamara

Optimal control of linear systems with fractional derivatives

Matychyn, Ivan / Onyshchenko, Viktoriia

Time-space fractional derivative models for CO2 transport in heterogeneous media

Chang, AiLian / Sun, HongGuang

Improvements in a method for solving fractional integral equations with some links with fractional differential equations

Cao Labora, Daniel / Rodríguez-López, Rosana

On some fractional differential inclusions with random parameters

Cernea, Aurelian

Initial boundary value problems for a fractional differential equation with hyper-Bessel operator

Al-Musalhi, Fatma / Al-Salti, Nasser / Karimov, Erkinjon

Mittag-Leffler function and fractional differential equations

Górska, Katarzyna / Lattanzi, Ambra / Dattoli, Giuseppe

Complex spatio-temporal solutions in fractional reaction-diffusion systems near a bifurcation point

Datsko, Bohdan / Gafiychuk, Vasyl

Differential and integral relations in the class of multi-index Mittag-Leffler functions

Paneva-Konovska, Jordanka

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Communications in Nonlinear Science and Numerical Simulation

(Selected)

No nonlocality. No fractional derivative

Vasily E. Tarasov

On the ψ-Hilfer fractional derivative

J. Vanterler da C. Sousa, E. Capelas de Oliveira

A new glance on the Leibniz rule for fractional derivatives

K. Sayevand, J. Tenreiro Machado, D. Baleanu

On some new properties of fractional derivatives with Mittag-Leffler kernel

Dumitru Baleanu, Arran Fernandez

Lie symmetry analysis, exact solutions and conservation laws for the time fractional Caudrey – Dodd – Gibbon – Sawada – Kotera equation

Dumitru Baleanu, Mustafa Inc, Abdullahi Yusuf, Aliyu Isa Aliyu

Extremely low order time-fractional differential equation and application in combustion process

Qinwu Xu, Yufeng Xu

A spatial fractional seepage model for the flow of non-Newtonian fluid in fractal porous medium

Xu Yang, Yingjie Liang, Wen Chen

A space fractional constitutive equation model for non-Newtonian fluid flow

HongGuang Sun, Yong Zhang, Song Wei, Jianting Zhu, Wen Chen

Simulations of variable concentration aspects in a fractional nonlinear viscoelastic fluid flow

Amer Rasheed, Muhammad Shoaib Anwar

Prabhakar-like fractional viscoelasticity

Andrea Giusti, Ivano Colombaro

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Paper Highlight

General conformable fractional derivative and its physical interpretation

Zhao, Dazhi, Luo, Maokang

Publication information: CIRCUITS SYSTEMS AND SIGNAL PROCESSING Volume: 37 Issue:1 Pages: 98-111 Published: JAN 2018

https://link.springer.com/article/10.1007/s10092-017-0213-8

Abstract

Fractional calculus is a powerful and effective tool for modelling nonlinear systems. In this paper, we introduce a class of new fractional derivative named general conformable fractional derivative (GCFD) to describe the physical world. The GCFD is generalized from the concept of conformable fractional derivative (CFD) proposed by Khalil. We point out that the term t1−αt1−α in CFD definition is not essential and it is only a kind of “fractional conformable function”. We also give physical and geometrical interpretations of GCFD which thus indicate potential applications in physics and engineering. It is easy to demonstrate that CFD is a special case of GCFD, then to the authors’ knowledge, so far we first give the physical and geometrical interpretations of CFD. The above work is done by a new framework named Extended Gâteaux derivative and Linear Extended Gâteaux derivative which are natural extensions of Gâteaux derivative. As an application, we discuss a scheme for solving fractional differential equations of GCFD.

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A new collection of real world applications of fractional calculus in science and engineering

HongGuang Sun, Yong Zhang, Dumitru Baleanu, Wen Chen and YangQuan Chen.

Publication information: Communications in Nonlinear Science and Numerical Simulation, Volume: 64 Pages: 213 – 231 Published: 2018

https://reader.elsevier.com/reader/sd/BB901DA69997D94FE9C85D11232224FF80D3EDB9A565865F63AA57F8CCCE5

Abstract

Fractional calculus is at this stage an arena where many models are still to be introduced, discussed and applied to real world applications in many branches of science and engineering where nonlocality plays a crucial role. Although researchers have already reported many excellent results in several seminal monographs and review articles, there are still a large number of non-local phenomena unexplored and waiting to be discovered. Therefore, year by year, we can discover new aspects of the fractional modeling and applications. This review article aims to present some short summaries written by distinguished researchers in the field of fractional calculus. We believe this incomplete, but important, information will guide young researchers and help newcomers to see some of the main real-world applications and gain an understanding of this powerful mathematical tool. We expect this collection will also benefit our community.

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