

# **FDA Express Vol. 12, No. 4, Aug. 30, 2014**

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**Institute of Soft Matter Mechanics, Hohai University**

**For contribution:** [fdaexpress@163.com](mailto:fdaexpress@163.com), [pangguofei2008@126.com](mailto:pangguofei2008@126.com)

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## **◆ Great News on the First FCAA Impact Factor and Its Ranking**

Prof. V. Kiryakova, managing editor of Fractional Calculus and Applied Analysis (FCAA), delivered us great news on the first impact factor and ranking of this journal. Below is quoted from her original email:

"As we already discussed with some of Editors, the end of July brought to FCAA journal the expected news about the first impact factor by Thomson Reuter, and also SJR by Scopus, for 2013: According to JCR 2013 (release July 2014), JIF = 2.974, and this launches FCAA at 4th and 5th places in categories Mathematics (Interdisciplinary Applications, and Applied). We got also SJR = 2.106 by Scopus, which confirms journal's excellent performance..."

Let us congratulate on this great achievement! And make this journal of our FDA community even more successful in years to come.

## **◆ Latest SCI Journal Papers on FDA**

[\(Searched on 30th August 2014\)](#)

### **◆ Call for papers**

[Special Issue: Dynamics and Control of Fractional Order Systems International Journal of](#)

[Dynamics and Control](#)

### **◆ Books**

[Stochastic Calculus for Fractional Brownian Motion and Related](#)

[Random Walks on Disordered Media and their Scaling Limits](#)

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[Communications in Nonlinear Science and Numerical Simulation](#)

[Chaos, Solitons & Fractals](#)

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[Analysis of Fractional Differential Equations](#)

◆ **Websites of Interest**

[Fractional Calculus & Applied Analysis](#)

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## Latest SCI Journal Papers on FDA

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**(Searched on 30th August 2014)**

[The uniqueness of positive solution for a fractional order model of turbulent flow in a porous medium](#)

By: Zhang, Xinguang; Liu, Lishan; Wu, Yonghong

APPLIED MATHEMATICS LETTERS Volume: 37 Pages: 26-33 Published: NOV 2014

[Vector power multiple-parameter fractional Fourier transform of image encryption algorithm](#)

By: Ran, Qiwen; Zhao, Tiejun; Yuan, Lin; et al.

OPTICS AND LASERS IN ENGINEERING Volume: 62 Pages: 80-86 Published: NOV 2014

[Fractional BVPs with strong time singularities and the limit properties of their solutions](#)

By: Stanek, Svatoslav

CENTRAL EUROPEAN JOURNAL OF MATHEMATICS Volume: 12 Issue: 11 Pages: 1638-1655 Published: NOV 2014

[Fractional-order theory of heat transport in rigid bodies](#)

By: Zingales, Massimiliano

COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL  
SIMULATION Volume: 19 Issue: 11 Pages: 3938-3953 Published: NOV 2014

[On the oscillation of fractional-order delay differential equations with constant coefficients](#)

By: Bolat, Yasar

COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL  
SIMULATION Volume: 19 Issue: 11 Pages: 3988-3993 Published: NOV 2014

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## Call for papers

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**Special Issue: Dynamics and Control of Fractional Order Systems**

**International Journal of Dynamics and Control**

<http://www.springer.com/materials/mechanics/journal/40435>

(Contributed by Prof. Manuel Duarte Ortigueira)

Fractional calculus is currently gaining more and more popularity in the control engineering community. The origin of this emerging concept dates back to the early days of classical differential calculus, although its inherent complexity postponed its use and application to the engineering world. Nowadays, its use in control engineering has been gaining more and more momentum in both modeling and identification, as well as in the controller tuning.

The aim of this special issue is to promote further development of fractional order calculus in the field of control engineering, in terms of identification, modeling and control design. Authors of this special issue are welcomed to submit original research describing the recent advances in the theory and numerical techniques of fractional order calculus in various scientific and engineering applications including identification, modeling, simulation, control, optimization, etc.

**Topics of this special issue include:**

Fractional order control (tuning, implementation issues, new algorithms)

Signal analysis and filtering with fractional tools (restoration, reconstruction, analysis of fractal noises, etc.)

Fractional order modeling of physical systems

Fractional system identification and optimization (linear, nonlinear, multivariable methods, etc.)

**Important Dates:**

2014: 21 August Call for Papers

2014: 01 December Paper Submission

2015: 20 February Peer Review

2015: 31 March Final Paper Submission

June 2015: Tentative Publication

**Submission Guidelines:**

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

<https://www.editorialmanager.com/ijdy/>

**Guest Editors:**

**Manuel D. Ortigueira**

UNINOVA and DEE/ Faculdade de Ciências e Tecnologia da UNL

Campus da FCT, Quinta da Torre, 2829-516 Caparica, Portugal

E-mail: [mdu@fct.unl.pt](mailto:mdu@fct.unl.pt) , [mdortigueira@uninova.pt](mailto:mdortigueira@uninova.pt)

**Cristina I. Muresan**

Technical University of Cluj-Napoca, Faculty of Automation and Computer Science, Dept of Automation,

Memorandumului Street, no 28, 400114 Cluj-Napoca, Romania

E-mail: [Cristina.Pop@aut.utcluj.ro](mailto:Cristina.Pop@aut.utcluj.ro)

**J. Tenreiro Machado**

Institute of Engineering, Polytechnic of Porto

Dept. of Electrical Engineering

Rua Dr. Antonio Bernardino de Almeida, 431

4200-072 Porto, Portugal

Email: [jtenreimachado@gmail.com](mailto:jtenreimachado@gmail.com)

**Clara M. Ionescu**

Ghent University, Faculty of Engineering and Architecture, Dept of Electrical energy, Systems and Automation

Sint Pietersnieuwstraat 41, 9000 Gent, Belgium

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

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## Books

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### **Stochastic Calculus for Fractional Brownian Motion and Related Processes**

Mishura, Yuliya

**Book Description**

The theory of fractional Brownian motion and other long-memory processes are addressed in this volume. Interesting topics for PhD students and specialists in probability theory, stochastic analysis and financial mathematics demonstrate the modern level of this field. Among these are results about Levy characterization of fractional Brownian motion, maximal moment inequalities for Wiener integrals including the values  $0 < H < 1/2$  of Hurst index, the conditions of existence and

uniqueness of solutions to SDE involving additive Wiener integrals, and of solutions of the mixed Brownian—fractional Brownian SDE. The author develops optimal filtering of mixed models including linear case, and studies financial applications and statistical inference with hypotheses testing and parameter estimation. She proves that the market with stock guided by the mixed model is arbitrage-free without any restriction on the dependence of the components and deduces different forms of the Black-Scholes equation for fractional market.

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

<http://www.springer.com/mathematics/probability/book/978-3-540-75872-3>

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## **Random Walks on Disordered Media and their Scaling Limits**

Takashi Kumagai

### **Book Description**

In these lecture notes, we will analyze the behavior of random walk on disordered media by means of both probabilistic and analytic methods, and will study the scaling limits. We will focus on the discrete potential theory and how the theory is effectively used in the analysis of disordered media. The first few chapters of the notes can be used as an introduction to discrete potential theory. Recently, there has been significant progress on the theory of random walk on disordered media such as fractals and random media. Random walk on a percolation cluster (‘the ant in the labyrinth’) is one of the typical examples. In 1986, H. Kesten showed the anomalous behavior of a random walk on a percolation cluster at critical probability. Partly motivated by this work, analysis and diffusion processes on fractals have been developed since the late eighties. As a result, various new methods have been produced to estimate heat kernels on disordered media. These developments are summarized in the notes.

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

<http://link.springer.com/book/10.1007/978-3-319-03152-1>

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# Journals

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## Communications in Nonlinear Science and Numerical Simulation

Volume 20, Issue 1 (selected)

[Fractional order junctions](#)

J. Tenreiro Machado\_

[The rogue waves with quintic nonlinearity and nonlinear dispersion effects in nonlinear optical fibers](#)

Li-Chen Zhao, Chong Liu, Zhan-Ying Yang

[Density evolution by the low-field limit of kinetic frameworks with thermostat and mutations](#)

Carlo Bianca, Annie Lemarchand\_

[A multiplierless hyperchaotic system using coupled Duffing oscillators](#)

J.S. Armand Eyebe Fouda, Samrat L. Sabat

[Mellin transform approach for the solution of coupled systems of fractional differential equations](#)

Salvatore Butera, Mario Di Paola

[A novel Lie-group theory and complexity of nonlinear dynamical systems](#)

Chein-Shan Liu

[Fractional calculus and fractional differential equations in nonreflexive Banach spaces](#)

Ravi P. Agarwal, Vasile Lupulescu, Donal O'Regan, Ghaus ur Rahman\_

[Group analysis of the drift–diffusion model for quantum semiconductors](#)

N.H. Ibragimov, R. Khamitova, E.D. Avdonina, L.R. Galiakberova\_

[Finite difference method to find period-one gait cycles of simple passive walkers](#)

Morteza Dardel, Masoumeh Safartoobi, Mohammad Hadi Pashaei, Mohammad Hassan Ghasemi, Mostafa Kazemi Navaei

[Optimal system and exact solutions for the generalized system of 2-dimensional Burgers equations with infinite Reynolds number](#)

Muhammad Alim Abdulwahhab\_

[On the mKdV–Liouville hierarchy and its self-similarity reduction](#)

Danilo V. Ruy\_

[An exact solution for the 3D MHD stagnation-point flow of a micropolar fluid](#)

A. Borrelli, G. Giantesio, M.C. Patria

[Transport in a three-zone wetland: Flow velocity profile and environmental dispersion](#)

P. Wang, G.Q. Chen, C.B. Jiang, A. Alsaedi, Z. Wu, L. Zeng\_

[Lubricated friction in Frenkel–Kontorova model between incommensurate surfaces](#)

Yang Yang, Cang-Long Wang, Wen-Shan Duan, Jian-Min Chen, Lei Yang\_

[Thermodynamics of a bouncer model: A simplified one-dimensional gas](#)

Edson D. Leonel, André L.P. Livorati\_

[A chaotic model of sustaining attention problem in attention deficit disorder](#)

G. Baghdadi, S. Jafari, J.C. Sprott, F. Towhidkhan, M.R. Hashemi Golpayegani\_

[Detailed bifurcation analysis with a simplified model for advance heavy water reactor system](#)

Vikas Pandey, Suneet Singh\_

[Complexity analysis of dual-channel game model with different managers' business objectives](#)

Ting Li, Junhai Ma\_

[Fallacies of composition in nonlinear marketing models](#)

Gian Italo Bischi, Lorenzo Cerboni Baiardi\_

[On orbital-reversibility for a class of planar dynamical systems](#)



A. Algaba, I. Checa, C. García, E. Gamero\_

[Propagation dynamics of an epidemic model with infective media connecting two separated networks of populations](#)

Guanghu Zhu, Guanrong Chen, Haifeng Zhang, Xinchu Fu

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## **Chaos, Solitons & Fractals**

Volume 67

[Multifractal detrended cross-correlation analysis for epileptic patient in seizure and seizure free status](#)

Dipak Ghosh, Srimonti Dutta, Sayantan Chakraborty

[Anomalous transmission and drifts in one-dimensional Lévy structures](#)

P. Bernabó, R. Burioni, S. Lepri, A. Vezzani

[Reversing the stability of fixed points to generate oscillations in electrochemical systems: Simulations and experiments](#)

Fernando Montoya, M. Rivera, P. Parmananda

[Flow of fractal fluid in pipes: Non-integer dimensional space approach](#)

Vasily E. Tarasov

[Dynamical systems generating large sets of probability distribution functions](#)

F. Balibrea, J. Smítal, M. Štefánková\_

[Algebro-geometric solutions for the two-component Camassa–Holm Dym hierarchy](#)

Yu Hou, Engui Fan\_

[Investment timing under hybrid stochastic and local volatility](#)

Jeong-Hoon Kim, Min-Ku Lee, So Young Sohn

[Influence of discrete delay on pattern formation in a ratio-dependent prey–predator model](#)

Malay Banerjee, Lai Zhang

[Integrability of fractional order generalized systems with p:-q resonance](#)

Wentao Huang, Tianlong Gu, Huili Li\_\_

[Suppressing cascades in a self-organized-critical model with non-contiguous spread of failures](#)

Heiko Hoffmann, David W. Payton

[Analysis on limit cycle of fractional-order van der Pol oscillator](#)

Yongjun Shen, Shaopu Yang, Chuanyi Sui

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## Paper Highlight

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### Analysis of Fractional Differential Equations

Kai Diethelm, Neville J. Ford

**Publication information:** Kai Diethelm, Neville J. Ford. Analysis of Fractional Differential Equations. Journal of Mathematical Analysis and Applications, Volume 265, Issue 2, 15 January 2002, Pages 229-248. \_\_

<http://www.sciencedirect.com/science/article/pii/S0022247X00971944>

**Abstract**

We discuss existence, uniqueness, and structural stability of solutions of nonlinear differential equations of fractional order. The differential operators are taken in the Riemann–Liouville sense and the initial conditions are specified according to Caputo's suggestion, thus allowing for interpretation in a physically meaningful way. We investigate in particular the dependence of the solution on the order of the differential equation and on the initial condition, and we relate our results to the selection of appropriate numerical schemes for the solution of fractional differential equations.

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**The End of This Issue**

