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Fractional Calculus & Applied Analysis
Latest SCI Journal Papers on FDA

(Searched on 30th December 2014)

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

Strang-type preconditioners for solving fractional diffusion equations by boundary value methods
By: Gu, Xian-Ming; Huang, Ting-Zhu; Zhao, Xi-Le; et al.
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS Volume: 277 Pages: 73-86 Published: MAR 15 2015

Feature selection for spontaneous speech analysis to aid in Alzheimer's disease diagnosis: A fractal dimension approach
By: Lopez-de-Ipina, Karmele; Sole-Casals, Jordi; Eguiraun, Harkaitz; et al.
COMPUTER SPEECH AND LANGUAGE Volume: 30 Issue: 1 Pages: 43-60 Published: MAR 2015

ATTRACTORS AND THEIR PROPERTIES FOR A CLASS OF NONLOCAL EXTENSIBLE BEAMS
By: Jorge da Silva, Marcio Antonio; Narciso, Vando
DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS Volume: 35 Issue: 3 Pages: 985-1008 Published: MAR 2015

Damage identification techniques via modal curvature analysis: Overview and comparison
By: Dessi, Daniele; Camerlengo, Gabriele
MECHANICAL SYSTEMS AND SIGNAL PROCESSING Volume: 52-53 Pages: 181-205 Published: FEB 2015

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Conferences

Special session invitation

Fractional order models and signals


December 15-18, 2015 in Osaka, Japan

Call for Papers

The goal of this special session is to gather colleagues that work in the field of fractional calculus in order to present the latest results in fractional order models and signals domain. Papers describing original research work that reflects the recent theoretical advances and experimental results as well as open new issues for research are invited. This session will cover the following topics (but not limited to):

- Signal analysis and filtering with fractional tools (restoration, reconstruction, analysis of fractal noises);
- Fractional modeling especially of (but not limited to) thermal systems, electrical systems (motors, transformers, skin effect, …), dielectric materials, electrochemical systems (batteries, ultracapacitors, fuel cells, …), mechanical systems (vibration insulation, viscoelastic materials, …), biological systems (muscles, lungs, …);
- System identification (linear, non linear, MIMO methods, …);
- Models implementation (fractional controllers and filters implementation, …);
- Systems analysis (stability, observability, controllability, …);
- Observers;
- Control (Fractional PID, CRONE, H∞, …);
- Diagnosis based on fractional models.

**Submission Deadline:** Contributed Papers and special issues must be submitted before **March 24, 2015** but the session proposal deadline is **March 12, 2015**

**Submission Guidelines:** Prepare your papers according to recommendations available at [http://www.cdc2015.ctrl.titech.ac.jp/cfp.php](http://www.cdc2015.ctrl.titech.ac.jp/cfp.php)

**Contact if you intend to participate**

Christophe Farges, Jocelyn Sabatier  
IMS laboratory – Bordeaux University - UMR 5218 CNRS  
Email: christophe.farges@ims-bordeaux.fr  
             jocelyn.sabatier@ims-bordeaux.fr

Please indicate [Invited Session - CDC 2015] in the email subjectt

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**Books**

**Selected Problems of Fractional Systems Theory**  
Tadeusz Kaczorek

**Book Description**

This monograph covers some selected problems of positive fractional 1D and 2D linear systems. It is an extended and modified English version of its preceding Polish edition published by Technical University of Bialystok in 2009. This book is based on the lectures delivered by the author to the Ph.D. students of the Faculty of Electrical Engineering of Bialystok University of Technology and of Warsaw University of Technology and on invited lectures in several foreign universities in the last three years.
Preface

The study of the Mittag-Leffler function and its various generalizations has become a very popular topic in mathematics and its applications. However, during the twentieth century, this function was practically unknown to the majority of scientists, since it was ignored in most common books on special functions. As a noteworthy exception the handbook Higher Transcendental Functions, vol. 3, by A. Erdelyi et al. deserves to be mentioned.

Now the Mittag-Leffler function is leaving its isolated role as Cinderella (using the term coined by F.G. Tricomi for the incomplete gamma function).

The recent growing interest in this function is mainly due to its close relation to the Fractional Calculus and especially to fractional problems which come from applications.

Our decision to write this book was motivated by the need to fill the gap in the literature concerning this function, to explain its role in modern pure and applied mathematics, and to give the reader an idea of how one can use such a function in the investigation of modern problems from different scientific disciplines.

This book is a fruit of collaboration between researchers in Berlin, Bologna and Minsk. It has highly profited from visits of SR to the Department of Physics at the University of Bologna and from several visits of RG to Bologna and FM to the Department of Mathematics and Computer Science at Berlin Free University under the European ERASMUS exchange. RG and SR appreciate the deep scientific atmosphere at the University of Bologna and the perfect conditions they met there for intensive research.

We are saddened that our esteemed and always enthusiastic co-author Anatoly A. Kilbas is no longer with us, having lost his life in a tragic accident on 28 June 2010 in the South of Russia. We will keep him, and our inspiring joint work with him, in living memory.

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

Entropy

Volume 16, Issue 12 (selected)

Complex Modified Hybrid Projective Synchronization of Different Dimensional Fractional-Order Complex Chaos and Real Hyper-Chaos

Jian Liu

Adaptive Synchronization of Fractional Neural Networks with Unknown Parameters and Time Delays

Weiyuan Ma, Changpin Li, Yujiang Wu and Yongqing Wu

Generation and Nonlinear Dynamical Analyses of Fractional-Order Memristor-Based Lorenz Systems

Zhaolu Guo, Xuezhi Yue, Kejun Zhang, Shenwen Wang and Zhijian Wu

Statistical Power Law due to Reservoir Fluctuations and the Universal Thermostat Independence Principle

Tamás Sándor Bíró, Péter Ván, Gergely Gábor Barnaföldi and Károly Ürmössy

On a Local Fractional Wave Equation under Fixed Entropy Arising in Fractal Hydrodynamics
Yu Zhang, Dumitru Baleanu and Xiaojun Yang

The McMillan Theorem for Colored Branching Processes and Dimensions of Random Fractals

Victor Bakhtin

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Neurocomputing

selected from multiple volumes

An indirect Lyapunov approach to the observer-based robust control for fractional-order complex dynamic networks

Yong-Hong Lan, Hai-Bo Gu, Cai-Xue Chen, Yan Zhou, Yi-Ping Luo

Finite-time stability of fractional delayed neural networks

Ranchao Wu, Yanfen Lu, Liping Chen

Leader-following consensus of fractional-order multi-agent systems under fixed topology

Zhiyong Yu, Haijun Jiang, Cheng Hu

Global stability analysis of fractional-order Hopfield neural networks with time delay

Hu Wang, Yongguang Yu, Guoguang Wen, Shuo Zhang, Junzhi Yu

Asymptotic stability of delayed fractional-order neural networks with impulsive effects

Fei Wang, Yongqing Yang, Manfeng Hu
An adaptive approach for texture enhancement based on a fractional differential operator with non-integer step and order

Fuyuan Hu, Shaohui Si, Hau San Wong, Baochuan Fu, MaoXin Si, Heng Luo

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

Xujun Yang, Qiankun Song, Yurong Liu, Zhenjiang Zhao

Dynamics in fractional-order neural networks

Chao Song, Jinde Cao

Robust state estimation for discrete-time neural networks with mixed time-delays, linear fractional uncertainties and successive packet dropouts

Xiu Kan, Huisheng Shu, Zhenna Li

Dynamic analysis of a class of fractional-order neural networks with delay

Liping Chen, Yi Chai, Ranchao Wu, Tiedong Ma, Houzhen Zhai

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Paper Highlight

Test for Determining a Subdiffusive Model in Ergodic Systems from Single Trajectories

Yasmine Meroz, Igor M. Sokolov and Joseph Klafter
Abstract
Experiments on particle motion show that it is often subdiffusive. This subdiffusion may be due to trapping, percolationlike structures, or viscoelastic behavior of the medium. While the models based on trapping (leading to continuous-time random walks) can easily be distinguished from the rest by testing their nonergodicity, the latter two cases are harder to distinguish. We propose a statistical test for distinguishing between these two based on the space-filling properties of trajectories, and prove its feasibility and specificity using synthetic data. We moreover present a flow chart for making a decision on a type of subdiffusion for a broader class of models.

Strange kinetics of single molecules in living cells

Eli Barkai, Yuval Garini, and Ralf Metzler

Abstract
The irreproducibility of time-averaged observables in living cells poses fundamental questions for statistical mechanics and reshapes our views on cell biology.
The End of This Issue