EDITORIAL

FCAA RELATED NEWS, EVENTS AND BOOKS

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Dear readers,

in the Editorial Notes we announce news for our journal, anniversaries, information on international meetings, events, new books, etc. related to the *FCAA* (“Fractional Calculus and Applied Analysis”) areas. All these Notes are published online with free open access.

1. Reports on Some FC Related Meetings in 2018

ICFDA 2018: “International Conference on Fractional Differentiation and its Applications”

(16-18 July 2018, Amman, The Hashemite Kingdom of Jordan)

Website:

<http://conferences.ju.edu.jo/en/icfda2018/Home.aspx>

The ICFDA is a series of specialized international conferences on fractional-order calculus and its applications, usually taking place in each 2 years since 2004. This was the 9th such conference. The next 10th conference is planned to be in 2020 in China. See history of the previous FDA conferences, at [http://conferences.ju.edu.jo/en/icfda2018/Lists/](http://conferences.ju.edu.jo/en/icfda2018/Lists/PastConferences/PCList.aspx)

[PastConferences/PCList.aspx](http://conferences.ju.edu.jo/en/icfda2018/Lists/PastConferences/PCList.aspx).

At this conference 239 participants were attendees from 35 participating countries.

The following ICFDA 2018 Awards were presented:

1. Mittag-Leffler Award: FDA Achievement Award → Shaher Momani
2. Riemann-Liouville Awards: Best FDA Papers (theory, application) → HongGuang Sun , Patrick Lanusse
3. Grünwald-Letnikov Awards: Best Student Papers (theory, application) → Iqbal M. Batiha , Jiamin Wei , Ang Li
4. FDA Dissemination Award → Reyad El-Khazali
5. Anatoly A. Kilbas Award → Małgorzata Klimek
6. Rudolf Gorenflo Award for young researches in Fractional Calculus → Enstar Abdel-Rehim
7. Innovation in Fractional Calculus Award → Guo-Cheng Wu and Dumitru Baleanu

More about the Memorial Session and Round Table discussions, see at next short note in same issue, “Fractional Calculus’s Adventures in Wonderland (Round Table held at ICFDA 2018)”, pp. xxxx–xxxx.

Post-conference publication of some selected papers presented at ICFDA 2018 will appear in a special issue of this journal, as *FCAA*, Vol. **22**, No 2 (2019), as well as in special and topical issues by other journals and publishers, as announced at the conference website.

On behalf of Organizers of ICFDA 2018

**Workshop “Fractional Calculus and Applications”
in honor of Professors**

Rudolf Gorenflo and Theo F. Nonnenmacher

(6-7 September 2018, University of Potsdam, Germany)

Website: www.agnld.uni-potsdam.de/

~metz/gorenflo_nonn/gorenflo_nonn.html

The workshop was dedicated to the late Professors Rudolf Gorenflo and Theo F. Nonnenmacher, two pioneers of the field of Fractional Calculus and its applications. It was hosted by the Department of Physics at the University of Potsdam and organised by Yuri Luchko (Beuth Technical University of Applied Sciences Berlin), Francesco Mainardi (University of Bologna), and Ralf Metzler (University of Potsdam).

Rudolf Gorenflo and Theo Nonnenmacher were good friends, brothers-in-law (Theo was a brother of Rudolf’s spouse), and masterminds in Fractional Calculus and its applications. Even if Rudolf became a mathematician and Theo was a physicist, they both worked application-oriented and produced several brilliant ideas that led to some fundamental results and

publications in Fractional Calculus and its applications. Another merit of Rudolf Gorenflo and Theo Nonnenmacher was their intensive scientific contacts to both colleagues and young researchers whom they introduced to the beautiful world of Fractional Calculus.

Rudolf Gorenflo (31.07.1930 - 20.10.2017), at right, and
Theo Nonnenmacher (07.03.1933 - 01.03.2016), at left,
as students at the University of Karlsruhe

The workshop at the University of Potsdam aimed to bring together colleagues and scientific followers of Rudolf Gorenflo and Theo Nonnenmacher, both mathematicians and applied scientists, who are developing the theory of fractional calculus and using its tools to describe temporal or spatial properties of complex systems. Topics covered during the workshop were fractional relaxation and diffusion processes, direct and inverse problems for the fractional differential equations, special functions and integral transforms, fractional stochastic processes, their applications to physical, biological, and technical systems, as well as related matters.

The scientific program of the workshop and the included 21 talks (given in alphabetical order) can be found at the Workshop's website.

Organizers: Yuri Luchko, Francesco Mainardi, and Ralf Metzler

**Memorial Conference “100th Birth Anniversary
of Academician Mkhitar Djrbashyan”**

(22-24 October 2018, Yerevan, Armenia)

Website: <http://math.sci.am/conference/djrbashyan-100>

The conference was organized by Institute of Mathematics of the Armenian National Academy of Sciences joint with the Armenian Mathematical Union.

Main topics were, among these were Acad. M.M. Djrbashyan had his main contributions: – Complex Analysis; – Approximation theory; – Differential Equations; – Fourier Analysis; – Special Functions; – Fractional calculus.

The conference was attended by approximately 50 participants, <http://math.sci.am/conference/djrbashyan-100/list-participants> with the 3 days busy scientific program as announced at <http://math.sci.am/conference/djrbashyan-100/list-participants>.

https://en.wikipedia.org/wiki/Mkhitar_Djrbashian

Mkhitar Djrbashian (also M. M. Dzhrbashjan, M. M. Jerbashian; etc.), born in Yerevan on September 11, 1918, was a notable Armenian mathematician, who made significant contributions to the constructive theory of functions, harmonic analysis, theory of analytic functions and a fundamental contribution to the classical theory of univalent analytic functions. He created some well-known mathematical theories and did everything possible for the development of Armenian Mathematical School to the high international standards in many branches of mathematics. He was a Full Member of Armenian Academy of Sciences from 1956, the founder and the Director of Institute of Mathematics of National Academy of Sciences of Armenia (1971–1989), then the Honorary Director of the same institute up to his death on May 6, 1994 of a heart attack. He was the founder of *Izvestiya Natsionalnoi Akademii Nauk Armenii*, *Matematika* (English translation: *Journal of Contemporary Mathematical Analysis*, Armenian Academy of Sciences, Allerton Press Inc.) and its Editor in Chief (1971–1994), the Dean

of the Physical-Mathematical and then Mechanical-Mathematical Department of Yerevan State University (1957–1960), and the Head of the Chair of Function Theory (1978–1986).

For the audience of this journal, M.M. Djrbashian should be honored for one of the first deepest studies on: the Mittag-Leffler function and its multi-index extensions in the years of 20th century of its recognition as an important special function; on the operators of fractional calculus - especially, also a variant of derivative of fractional order usually called after Caputo; on Laplace and Fourier type integral transforms closely related to integer and fractional order differential operators and to Mittag-Leffler functions, etc. Among some of the works with contributions in these areas we can mention:

– M.M. Djrbashian, A.B. Nersesyan, On application of some integro-differential operators (In Russian). *Doklady AN SSSR* **121**, No 2 (1958), 210–213;

– M.M. Djrbashian, On the integral transformations generated by the generalized Mittag-Leffler functions (In Russian). *Izvestija AN Arm. SSR* **13**, No 3 (1960), 21–63;

– M.M. Djrbashian, “*Integral Transforms and Representation of Functions in the Complex Domain*” (In Russian). Moscow, Nauka, 1966;

– M.M. Djrbashian, A.B. Nersesyan, Fractional derivatives and the Cauchy problem for differential equations of fractional order (In Russian). *Izvestija AN Arm. SSR, Matematika* **3**, No 1 (1968), 3–29;

– M.M. Djrbashian, On the completeness of the system of Mittag-Leffler type (In Russian). *Doklady AN SSSR* **219**, No 6 (1974), 1302–1305;

– M.M. Djrbashian, R.A. Bagyan, On the integral representations and measures associated with functions of Mittag-Leffler type (In Russian). *Izvestija AN Arm. SSR, Matematika* **10**, No 6 (1975), 483–508;

and a long list of others, authored by him, and in collaboration, or by his followers of the same research group

The 2nd International Symposium on Operational Methods in Fractional Dynamics

(11-15 November 2018, Kraków, Poland)

Website: <https://www.ifj.edu.pl/dept/no4/nz43/conf.htm>

The Symposium was organized by H. Niewodniczanski Institute of Nuclear Physics, Polish Academy of Sciences. It was devoted to presentation and discussion of the mathematical and physical aspects of Fractional Dynamics, with emphasize on the ongoing progress in the theory of fractional evolution equations, operational methods, integral transforms, special functions, and their applications in various branches of sciences.

The meeting was attended by 32 registered participants, the program and abstracts of the talk can be found at its website.

**2nd Fractional Calculus Meeting
as an homage to Prof. Luis Vázquez for his 70 years
(21-23 November 2018, Madrid, Spain)**

Website:

<https://www.fdi.ucm.es/profesor/lvazquez/jornadas2018/>

The meeting was organized and held at Universidad Complutense de Madrid (UCM, Facultad de Informática, Madrid, Spain). It was extension of the 1st local meeting in 2017, as an overview of the works on fractional calculus' topics by Spanish groups. This 2nd meeting had a more international flavour and was also intended as an homage to Professor Luis Vázquez on his 70th birthday.

Among all 24 talks, there were 6 plenary lectures on the foundations and on the state of the art of the field (Kiryakova, Baleanu, Sanjuán, Trujillo) that included also some applications to new and other areas (Tenreiro Machado, Díaz). Many different applications were presented (Aguirre, Cuesta, Gracia, Jiménez, Usero, Velasco) and links to FC operators (De León, Torre), including experimental aspects where fractional modelling can be of significance (Bermejo, Domínguez, Martín). Also, some other topics

where nonlocal effects arise were treated (Barderas, Konotop, Romero, Alfimov). The poster, program and Abstracts of the talks can be found at the meeting's website.

During the meeting, the jubilee Prof. Luis Vázquez was proud to show us an implementation of the Fractional Calculus in the chip of the Martian wind sensor. One of the chips arrived some few days later, on 26 November, to Mars in the NASA Insight Mission, <https://mars.nasa.gov/insight/>. In the Facultad de Informatica, at Universidad Complutense de Madrid, they have two samples: One in Prof. Vázquez's office and the other one waiting to be located in the Museum: <https://tribuna.ucm.es/220/art3239.php>.

Let us congratulate Prof. Luis Vázquez for this implementation of the New Martian Fractional Calculus!

Prof. Luis Vázquez Martínez

Luis Vázquez, born on January 26th 1949 in Narayola (León) is approaching his 70 years, and the 2nd FC meeting was dedicated to this happy anniversary.

Doctor in Physics by the Universidad de Zaragoza (1975), Full Professor in the Applied Math. Department, Universidad Complutense de Madrid (since 1996).

Some of his internationally recognised positions and links: – Visiting Research Associate at the Mathematics Department of Brown University (Providence, R.I., USA, 1975-1977); – Scientific Associate at the Center for Nonlinear Studies, Los Alamos National Laboratory (Los Alamos, N.M., USA, 1987-1990); – Theoretical Physics Division, CERN (1988); – Coordinator of Calibration of the UV sensores on board Beagle2 (ESA); – PI

(2004-2007) of the Rover Environmental Monitoring Station (REMS) on rover Curiosity (MSL-NASA); – Spanish Scientific Director of the joint Russia-Finland-Spain mission: MetNet Precursor; – Spanish Scientific Director of the instrument SIS-DREAMS (EXOMARS2016); – Co-I of the Russian instrument ACS (Atmospheric Chemistry Suite) on board the ExoMars Trace Gas Orbiter (EXOMARS2016); – Founder member of the Centro de Astrobiología (CSICINTA) associated to the NASA Astrobiology Institute; – Correspondant Academician of the Real Academia de Ciencias Exactas, Físicas y Naturales of Spain; – Doctor Honoris Causa by the Shanghai University of Science and Technology (1995); – Member of several scientific societies and academies.

Luis Vázquez (at right) poses with the chip donated by Luis Castañer Muñoz (at left)

Scientific activities: – more than 180 papers, 60 contributions to proceedings, 3 books, coeditor of 17 books and many; – Advisor of 16 PhD Theses; – Participation in 58 national and international research projects; – Collaborations with more than 20 universities and international research centers.

Expertise on nonlinear dynamics, nonlinear wave equations, stochastic processes, computational physics, data mining, fractional calculus (creation of the FC studies group at the UCM in 2005) and topics related to mission to Mars: electromagnetic radiation, atmospheric processes, astrobiology (participation in the scientific definition and design of instruments).

More information in the links:

<https://www.fdi.ucm.es/profesor/lvazquez/>

<https://genealogy.math.ndsu.nodak.edu/id.php?id=88195&fChrono=1>

<https://scholar.google.es/citations?user=YObOLjQAAAAJ&hl=es>

https://es.wikipedia.org/wiki/Luis_Vázquez-Martínez

2. Calendar of Coming FC Related Meetings

OTHA-2019:

**“Modern Methods, Problems and Applications
of Operator Theory and Harmonic Analysis”**

(21-26 April 2019, Rostov-na-Don, Russia)

Website: <http://otha.sfedu.ru/conf2019/>

Topics and sessions: – Functional Analysis and Operator Theory; – Function Theory and Approximation Theory; – Differential Equations and Mathematical Physics; – Hausdorff Operators and Related Topics; – Probability-Analytical Models and Methods; – Bioinformatics and Mathematical Modelling.

For more information, contact: otha.conference@gmail.com and visit http://otha.sfedu.ru/bitrix/templates/social-s1-conf2019-en/files/second_letter_otha_2019.pdf.

On behalf of Organizing Committee, *Alexey N. Karapetyants*

AMEE 2019: 45th International Conference

“Applications of Mathematics in Engineering and Economics”

(7-13 June 2019, Sozopol, Bulgaria)

Website: <http://amee.tu-sofia.bg/>

Organized by Faculty of Applied Mathematics and Informatics – Technical University of Sofia and Faculty of Mathematics and Informatics – Sofia University “St. Kliment Ohridski”, annually in June in the ancient town of Sozopol, a popular Black Sea resort place. The town is located 34 kilometers south of Bourgas (International Airport) and can be reached also by buses from Sofia Central Bus Station (journey about 5-6 hours).

The weather at this time of year is favorable for enjoying sunny and sea baths. The accommodation of participants can be in the Leisure House of Technical University as well as in other hotels around the Conference venue, along with the Black Sea coast, details:

<http://amee.tu-sofia.bg/accomodation.php>.

The peer-reviewed contributions of AMEE are published in open access by American Institute of Physics Conference Proceedings, Scopus indexed publication with SJR.

The Conference will cover the following topics: – Mathematical Analysis and Applications - measures and integration, potential theory, functional analysis, Fourier analysis, approximations, special functions and integral transforms; – Differential Equations - ODE, PDE, integral equations, dynamical systems; – Differential Geometry - tensor analysis, differential

topology, Lie groups, complex manifolds; – Operations Research, Economics, Programming - stability, numerical methods, finance, mathematical modeling; – Numerical Methods and Mathematical Modeling; – Statistics, Probability theory - branching processes, reliability, queueing theory, industrial statistics; – Software Innovations in Scientific Computing - algebraic structures in informatics, discrete structures; – E-learning.

The above topics can be precised and complemented by announcing and organizing special sessions.

Currently Announced Special Sessions:

– “Fractional Calculus, Special Functions and Applications”, organized by Prof. Virginia Kiryakova, IMI – BAS and Prof. Jordanka Paneva-Konovska, FAMI – TU Sofia.

– “Partial Differential Equations and Applications”, organized by Prof. Nedyu Popivanov, Faculty of Mathematics and Informatics – University of Sofia.

Contact with Organizers, e-mail: amee@tu-sofia.bg

We specially invite colleagues devoted to Fractional Calculus, Special Functions, Integral Transforms and their Applications to visit this charming place and attend the conference, please contact us via V. Kiryakova, e-mail: virginia@diogenes.bg

The Organizers, V. Kiryakova and J. Paneva-Konovska

3. New Books

Bruce J. West, *Nature's Patterns and the Fractional Calculus*. Ser. Fractional Calculus in Applied Sciences and Engineering, Volume 2, De Gruyter, Berlin / Boston, 2017, 199 pp., ISBN: 978-3-11-053411-5

Details: <https://www.degruyter.com/view/product/485154>

Review on this book:

“Something to get the ‘little’ gray cells working”

This new book by sage and science provocateur, Bruce West, stimulates the mind the way an unsolved mystery stimulates Inspector Poirot. Since much of the complexity of nature resides in patterns woven in space and time, it tempting to invoke fractals and fractional calculus to color between the lines of integer order dimensions and derivatives. Here, Dr. West weaves a monograph that connects the omnipresent allometric models of science and sociology with non-linear stochastic models of system dynamics. He has, of course, written in the past on both these topics, but now moves the debate to the level of derivations – using ‘fractional probability calculus’ to create a model whose steady state solution scales with the heuristic allometry variables. In the process, Dr. West connects physics

with complexity using the concept of a system's information gradient as the source of its scaling behavior. The book is approachable in bite size chapters that describe complexity, empirical allometry, statistics, scaling and simulations, allometry theories, strange kinetics, fractional rate equations and fractional probability calculus. The resulting meal is satisfying as the book digests 'allometry' using complexity, information theory, entropy as enzymes to resolve the component parts. All in all, it is food for the mind.

The text is supplemented with an index, numerous figures, and an up-to-date list of references (391), each entry complete with title and authors.

Contents (6 Chapters): – Foreword; – 1. Complexity; – 2. Empirical Allometry; – 3. Statistics, Scaling and Simulation; – 4. Allometry Theories; – 5. Strange kinetics; – 6. Epilogue; – References; – Index.

Read more at: [https://books.google.com/books/about/](https://books.google.com/books/about/Nature_s_Patterns_and_the_Fractional_Cal.html?id=iAA3DwAAQBAJ)

[Nature_s_Patterns_and_the_Fractional_Cal.html?id=iAA3DwAAQBAJ](https://books.google.com/books/about/Nature_s_Patterns_and_the_Fractional_Cal.html?id=iAA3DwAAQBAJ)

Reviewer: *Richard L. Magin*

4. In Memoriam: Professor Wen Chen

Dr. Wen Chen received PhD from Shanghai Jiao Tong University in 1997 and was the Distinguished Professor and the former Dean (January 2013-September 2016) of College of Mechanics and Materials at the Hohai University, China. His research activities include computational mechanics, hydrodynamics, and acoustics, as summarized in his 250 plus academic journal papers and 4 monographs with more than 3000 non-self SCI citations. His interests centered on fractional-order physical modeling, RBF-based numerical simulation, anomalous diffusion and non-local statistics of soft matter mechanics. He was Associate director of "Chinese Society of Environmental Mechanics", the former TC chair of computational mechanics software under China Mechanics Society, the IFAC (the International Federation of Automatic Control) TC member on Linear Control Systems.

Dr. Wen Chen had 20 plus years working experiences in a variety of national laboratories, industries, and universities, including 6 years at overseas research entities. He organized 4 international academic conferences and workshops, many mini-symposiums as well as 2 domestic workshops and has traveled to over 20 countries for various academic visits. He is the principle investigator of 30 academic or industrial projects and served as Associate Editor or on Editorial Board of 12 journals, among which the 5 international journals are indexed by SCI. He had been awarded the JSPS (Japanese Society for Promotion of Science) Fellowship, Humboldt (Germany) Fellowship for Experienced Researchers, Australian Leadership Awards Fellowship, IC-CES MM 2010 Award for Promising Research on Novel Computational

Method, ICCES Distinguished Fellowship, Du Qinghua Medal of Computational Method in Engineering, and is a recipient of China National Funds for Distinguished Young Scientists. He was been on the 2014, 2015, and 2016 lists of the most cited Chinese researchers.

Prof. Wen Chen established a great research group focusing on fractional derivative and statistics, including more than ten faculties (of which five professors) and more than 20 PhD and master students; and cultivated 36 PhD students and 27 master students.

Wen Chen's Researchgate: https://www.researchgate.net/profile/Wen_Chen39/publications.

Prof. Wen Chen was a *Member of Editorial Board also of our journal FCAA*. As a great favor for the FC community were his initiatives to organize the International Conference “Fractional Differentiation and Applications 2012” (FDA 2012) and to host it at Hohai University, Nanjing – China, and to create, edit and publish monthly, since 2011 with 29 volumes, the electronic newsletter “*FDA Express*” read at <http://jsstam.org.cn/fda/>.

After a long fight with illness, Prof. Wen Chen died on 22 November 2018. It is a great loss for our FC community.

On behalf of FCAA Editors and his local collaborators and FC community, we express our condolences to his family and colleagues.

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