EDITORIAL

FCAA RELATED NEWS, EVENTS AND BOOKS
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Virginia Kiryakova

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. Some 2020 Conferences postponed

ICFDA 2020: International Conference on Fractional Differentiation and Applications ’2020

Dear “Fractional” friends,

The conference ICFDA 2020 was planned to take place on 23-25 September 2020 at Warsaw University of Technology, Warsaw, Poland.

Wishing you all the best, and hoping that you are far away from the coronavirus, we regret to inform you that ICFDA 2020 is indeterminately postponed (presumably the first half of 2021 or September 2021). We maintain the desire of the ICFDA organization but only when the coronavirus pandemic will be officially over.

We wish you great scientific “fractional” ideas and see you in our healthy again World, yours
Piotr Ostalczyk, Andrzej Dzielsnki, Dominik Sierociuk

NSFDE&A’20: International Workshop “Numerical Solution of Fractional Differential Equations and Applications”

Dear NSFDE&A’20 participants, Dear colleagues and friends,

The Workshop was planned to take place on June 8-13, 2020, Sozopol, Bulgaria (Black Sea), the 1st Announce was at: http://parallel.bas.bg/Conferences/NSFDE&A_2020-Sozopol.pdf.

Due to the epidemiological emergency from COVID-19, we have decided to postpone the International Workshop “Numerical Solution of Fractional Differential Equations” to the period September 7-12, 2020, keeping the place.
The Proceedings of Short Communications will be published soon by the Institute of Information and Communication Technologies as an e-book with ISBN 978-619-7320-09-1.

The workshop’s announcement will be updated soon, where the new dates, deadlines and a link to the e-Proceedings will be included. Contacts and queries: nsfdea20@parallel.bas.bg. Best wishes,

Svetozar Margenov, NSFDE&A’20

For other announced FC related events in 2020, please check their websites. Hope these could be updated with the expected changes.

2. New Books

Teodor Bulboaca, Santosh B. Joshi, and Pranay Goswami, *Complex Analysis. Theory and Applications*. Walter de Gruyter GmbH, Berlin, Boston (2019). xii, 409 pages, ISBN 978-3-11-065782-1, e-ISBN (PDF) 978-3-11-065786-9, e-ISBN (EPUB) 978-3-11-065803-3.

Details: [https://www.degruyter.com/view/product/533175](https://www.degruyter.com/view/product/533175);
De Gruyter: [https://doi.org/10.1515/9783110657869-fm](https://doi.org/10.1515/9783110657869-fm);
Book DOI: [https://doi.org/10.1515/9783110657869](https://doi.org/10.1515/9783110657869).

Review on this book: Complex analysis, as it is known today, is a result of over 500 years of mathematical development that has had tremendous influence in mathematics, physics and engineering. The classical theory of Complex analysis, which is the topic of the current book, appeared due to the works of a galaxy of famous mathematicians, from N.F. Tartaglia, G. Cardano, R. Descartes, through L. Euler, J-R. Argand, C. Wessel, C.F. Gauss, to A. Cauchy, B. Riemann, F. Klein, H. Poincaré and many others.

This book is an in-depth and modern presentation of important classical results in complex analysis and it is suitable for a first course on the topic. The level of difficulty increases gradually from chapter to chapter. Each chapter contains many exercises with solutions and applications of the results, showing a variety of solution techniques. Rich in of various examples, this book is simply excellent.

The book consists of 7 chapters.

Chapter 1 introduces the concept of complex numbers, and their arithmetic and geometric properties. Using a stereographic projection, the authors introduce the one-point compactification of the complex plane, the Riemann sphere.

Chapter 2 studies complex valued functions, and various notions of differentiability of such functions, and culminates with the concept of a holomorphic function. The presentation of their basic properties ends with
the Cauchy–Riemann equations. This chapter ends with a detailed overview of elementary entire functions and Möbius transformations that are needed in the remaining chapters.

Chapter 3 starts with the definitions of paths and complex integrals and it is followed by the Cauchy theorem and its consequences: the fundamental theorem of algebra, the Cauchy integral formula for holomorphic functions defined on the disc and the Morera theorem establishing sufficient conditions for holomorphy. The chapter ends with many applications including the theory of multivalent functions.

Chapter 4 characterizes holomorphic functions by their local analytic properties via power series expansions. Important theorems on the zeroes of holomorphic functions, the uniqueness of holomorphic functions, the maximum modulus principle, the Schwarz lemma, Laurent series expansions, isolated singular points and some basic results on meromorphic functions are presented.

Chapter 5 develops the theory of residues and its principal applications: the computation of a variety of trigonometric and improper integrals. The authors also apply the theory of residues to the study of zeros and poles of meromorphic functions, the principle of the argument and the Rouché theorem. This chapter ends with the open mapping theorem for nonconstant holomorphic functions and its topological consequences.

Chapter 6 starts with the fundamental theorems of Montel, Vitali and Hurwitz and it is then devoted to the topic of conformal mappings, univalent functions and the Riemann mapping theorem.

Chapter 7 contains the solutions of all exercises that appeared at the end of the previous chapters using a variety of solution techniques.

**Contents** (7 chapters): • Preface; • Complex numbers; • Holomorphic functions; • The complex integration; • Sequences and series of holomorphic functions; • Residue theory; • Conformal representations; • Solutions to the chapterwise exercises; • Bibliography, Index

**Sample Chapter(s):** Contents, Preface, Chapter 1: Complex numbers, Chapter 2: Holomorphic functions - up to p. 42 (available at the website, including at 'look inside')

**Readership:** Students that need basic (and not only) preparation in complex analysis, and all that are interested in this field of knowledge, those who intend to specialize in mathematics as well as students in physics, engineering, and economics.

Reviewer: Jordanka Paneva-Konovska

*Institute of Mathematics and Informatics, Bulgarian Academy of Sciences*
3. Call: Special Issue Announcement

“Fractional Calculus in Magnetic Resonance”: Special Issue in MDPI journal, *Mathematics* (ISSN 2227-7390)

Dear Colleagues,

The applications of fractional calculus in the field of magnetic resonance are widespread and growing. In particular, fractional calculus can extend the capabilities of nuclear magnetic resonance (NMR), electron spin resonance (ESR), and magnetic resonance imaging (MRI) by the generalizing the integer-order derivatives found in the Bloch and Bloch–Torrey equations. Solutions obtained using fractional calculus illuminate the structure and dynamics of materials at the molecular, cellular, and tissue length scales.

In these situations, the space and time-fractional derivatives encode features that are not completely resolved using standard methods. As a consequence, molecular couplings, cell membrane permeability, and imaging biomarkers, for example, can be computed and displayed. These new techniques combine the specificity of fractional calculus with the non-perturbing sensitivity of magnetic resonance. The development of these methods and models requires cooperation between experts in magnetic resonance and applied mathematics; cooperation exhibited by the technical, review, and tutorial papers in this Special Issue.

The purpose of this Special Issue is to gather articles reflecting the latest developments of fractional calculus in the fields of nuclear magnetic resonance (NMR), electron spin resonance (ESR), and magnetic resonance imaging (MRI). Applications employing fractional calculus in the sub-disciplines of NMR/ESR spectroscopy, relaxation, diffusion, and elastography are encouraged.

Deadline for manuscript submissions: 31 December 2020. Manuscript Submission Information at: https://www.mdpi.com/journal/mathematics/special_issues/Fractional_Calculus_Magnetic_Resonance.

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