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EDITORIAL SURVEY

IN MEMORY OF THE HONORARY FOUNDING EDITORS BEHIND THE *FCAA* SUCCESS STORY

Virginia Kiryakova¹, J.A. Tenreiro Machado², Yuri Luchko³

Abstract

In this editorial paper, we start by surveying of the main milestones in the organization, foundation, and development of the journal *Fractional Calculus and Applied Analysis (FCAA)*. The main potential of *FCAA* is in its readers, authors, and editors who contribute to the scientific advance and promote the progress of the journal. Among the editors, a special role of the honorary editors who contributed significantly to the foundation of the journal should be highlighted. These are prominent scientists, lecturers, and disseminators of FC and related topics. Unfortunately, some of them have already passed away, but they remain our living and lasting memory. In the main part of this survey, we remind the readers some biographical data and achievements related to *FCAA* topics of these Honorary Founding Editors: Professors Eric Love, Ian Sneddon, Bogoljub Stanković, Rudolf Gorenflo, Danuta Przeworska-Rolewicz, Gary Roach, Anatoly Kilbas, and Wen Chen. In eight sections, each devoted to one of the honorary editors, their ways in science and in FC, as well as their main results and publications are shortly described. Special attention is given to their role in foundation of *FCAA* and to their contributions to its success story.

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1. The journal “Fractional Calculus and Applied Analysis”: Its role in the development of Fractional Calculus

It is widely known that the theory of the derivatives and integrals of non-integral order (i.e., Fractional Calculus commonly abbreviated as FC) is nearly as old as the conventional calculus. However, for a long time FC was addressed and used just sporadically and only by a few but prominent scientists as Leibniz, Euler, Laplace, Abel, Liouville and Riemann, to mention only some of them from the old history of FC, [1]. In particular, they suggested several different definitions of the FC operators and studied their mathematical properties. As to the applications of the FC, only a few serious mathematical models in form of fractional differential equations were proposed and studied, until recently. It was a long standing open problem on possibilities to interpret either physically or geometrically these operators, see notes of round table discussion [2].

Within the last three decades, the state of affairs became completely different and we observe nowadays an exponential growth of FC publications, conferences, and scientists involved into this topic. Moreover, not only the theory of FC is under permanent and continuous development, but also numerous mathematical models containing fractional order operators were introduced in physics, chemistry, engineering, biology, medicine, and other sciences. It is worth mentioning that completely new branches of FC appeared during the last years, as e.g. operational calculi for the fractional derivatives, maximum principles for the fractional ODEs and PDEs, fractional calculus of variations, inverse problems for fractional differential equations, and fractional stochastic models, to mention only a few out of many new trends in FC.

Of course, this admirable development of FC, including important contributions to theory and its applications, [3]–[6], would be not possible without the joint efforts of FC experts in the framework of some specialized FC journals. Today, we look back on the success story of the “Fractional Calculus and Applied Analysis” (*FCAA*) and its almost quarter century history. Its role in the today’s achievements in FC cannot be underestimated.

The *FCAA* journal started in 1998 with Volume 1 in the follow-up of the 2nd International Workshop “Transform Methods and Special Functions” (TMSF), in Varna, Bulgaria, 1996. During TMSF’1996, the round table entitled “Physical and Geometrical Meanings and Applications of the Fractional Calculus Operators” discussed some open problems in FC, [2]. Well-known researchers, such as, P. Butzer, I. Dimovski, R. Gorenflo, S.L. Kalla, A. Kilbas, F. Mainardi, I. Podlubny, H.M. Srivastava, S. Kempfle, V. Kiryakova, J. Trujillo and P. Rusev, and several other participants took

an active part in the discussion. A clear conclusion emerged, namely regarding the need of a forum, like a periodical journal, where the results in FC and its applications as well as proceedings of some FC meetings could be published.

The founding and first publisher of *FCAA* was the Institute of Mathematics and Informatics – Bulgarian Academy of Sciences (IMI – BAS), with 13 volumes between 1998 and 2010. After its successful start, the journal was invited to be published by Versita (now De Gruyter Open) as nominated by Springer, and it was co-published by them 2011-2014 (Vol. 14 to Vol. 17). Since 2015, the *FCAA* went to the mother company De Gruyter as publisher, with Vol. 18 and on, each of 6 issues, and yearly contents of more than 1500 to 1800 pages. In 2011, the journal was accepted for indexing in Science Citation Index (SCI), by Thomson Reuters (Clarivate Analytics), and in Scopus, by Elsevier. The first journal impact factor (JIF) and rank were given in 2014, namely $JIF = 2.974$ (for 2013). Then, *FCAA* was classified on the 3rd and 4th places in the rank lists of Thomson Reuters for mathematical sciences and is continuing to be on the “Top 10” list in succeeding years thanks to the Editorial Board members’ efforts and, in particular, due to the contribution of its Honorary Editors.

A special role in the organization of the *FCAA* journal was played by its Honorary Editors who timely recognized an urgent need in a specialized FC journal. They actively discussed the idea of *FCAA*, helped to launch it, and supported the journal through their editorial activities and by publishing a series of brilliant papers. In these memory notes, we pay tribute to those of them who are no more among us, namely the Honorary Founding Editors (the names are sorted by order of birth years): Professors Eric Love, Ian Sneddon, Bogoljub Stanković, Rudolf Gorenflo, Danuta Przeworska-Rolewicz, Gary Roach, Anatoly Kilbas, and Wen Chen. Let us jointly remind some key facts from their biographies, their scientific achievements, and the role they played in the organization of *FCAA* and in their services to the FC community that we all recognise and remember.

2. The Honorary Founding Editors of *FCAA*

2.1. Eric Russel LOVE (31 March 1912 – 7 August 2001).

Australian mathematician and educator, researcher, born in London, arrived in Australia 1922. Chartered mathematician – Institute of Mathematics and Its Applications, England. Member Cambridge Scientists’ Anti-War Group, 1935-1938. Emeritus Professor – University of Melbourne, Australia.

Prof. E.R. Love was among the founding editors of *FCAA* since its first volume in 1998. His main research interests and contributions were in FC,

integral transforms, generalized functions, special functions, summabilities of series, integral operators and equations, to mention a few.



Education and scientific degrees; Bachelor with honours, University Melbourne, Australia, 1933; Bachelor with honors, Cambridge (England) University, 1935; Doctor of Philosophy, Cambridge (England) University, 1938; Doctor of Science, Cambridge (England) University, 1978; Doctor of Science, University Melbourne, Australia, 1992.

He started his career as Assistant lecturer at U. London Queen Mary College in 1938-1939; then in Durham University (England); continued as mathematics consultant at Munitions Supply laboratories, Melbourne, 1942-1943; and in Aero. Laboratory, Council for Scientific and Industrial Research, Melbourne, 1943-1945; senior lecturer mathematics, U. Melbourne, 1940-1941, etc. Professor at University of Melbourne, 1953-1977; Chairman of Mathematics Standing Committee of the Schools Board; Dean of the Faculty of Arts, 1960-1962; Head of the Department of Mathematics 1963-1977; and Emeritus since 1978.

An enormous contribution to the theory of FC goes back to his papers, such as:

– E.R. Love, L.C. Young, On fractional integration by parts. *Proc. London Math. Soc., Ser. 2*, **44** (1938), 1–35; <https://doi.org/10.1112/plms/s2-44.1.1>;

– E.R. Love, Some integral equations involving hypergeometric functions. *Proc. Edinburgh Math. Soc.* **15**, No 3 (1967), 169–198, where he derived a very useful functional equality.

He was also the first to prove that the composition of two Riemann-Liouville (R-L) fractional integrals with power weights yields the generalized fractional integral containing the Gauss hypergeometric function in

the kernel, the so-called hypergeometric fractional integral. He applied his results to the solution of the corresponding integral equations of the first kind in closed form.

Prof. Love was also pioneer in obtaining sufficient conditions for the existence of fractional integrals of purely imaginary order; also studied the so-called index laws for the R-L fractional integrals and derivatives. His other results involved investigation of Lebesgue points for the R-L integrals, the existence of fractional derivatives and applications of FC to solutions of integral equations. His other papers were devoted to the application of FC to the inversion of the Struve integral transform and to real and complex inversion formulas for the generalized Stieltjes transform. One can also find a series of his papers on various properties of special functions, integrals, series, inequalities, on some problems of functional analysis, potential theory and even on visco-elasticity.

Let us mention, among his numerous publications, some closely related to the *FCAA* topics:

- E.R. Love, Fractional derivatives of imaginary order. *J. London Math. Soc., Ser. 2*, **3** (1971), 241–259.
- E.R. Love, Two index law for fractional integrals and derivatives. *J. Austr. Math. Soc.* **14**, No 4 (1972), 385–410.
- E.R. Love, D.L. Clements, A transformation of Cooke's treatment of some triple integral equations. *J. Austr. Math. Soc., Ser. B*, **19** (1976), Part 3, 259–288.
- E.R. Love, A third index law for fractional integrals and derivatives. In: *Fractional Calculus* (Proc. Workshop held in Glasgow, 1984), Research Notes in Math., Vol. 138, Pitman Publ., Boston etc. (1985), 63–74.
- E.R. Love, Two theorems on Riesz-type fractional integrals. In: *Fractional Calculus and Its Applications* (Proc. Int. Conf. Tokyo, 1989), Nihon Univ. (1990), 85–93.
- E.R. Love, M. Hunter, Expansions in series of Legendre functions. In: *Transform Methods & Special Functions, Varna, 1996* (Proc. 2nd Int. Workshop, Eds: P. Rusev, I. Dimovski, V. Kiryakova), Sofia (1998), 288–299.

In Memoriam to Prof. Love, notes were published in *FCAA*, Vol. 4, No 4 (2001) by J.F. Clark, A. Kilbas, S. Samko and V. Kiryakova.

2.2. Ian Naismith SNEDDON (8 December 1919 – 4 November 2000).

Prof. I.N. Sneddon, formerly Simson Professor of Mathematics in the University of Glasgow, joined the Editorial Board of *FCAA* from its very beginning and supported its goals with full heart.

He was born in Glasgow and gained a First Class honors degree in Mathematics and Natural Philosophy at the University of Glasgow in 1940. Like many other bright young mathematicians of his day, he headed off to Cambridge and did Part II of the Tripos. However, with the Second World War at its height, the normal pattern of study was interrupted and he went to the Armaments Research and Development Establishment at Fort Halstead. There he met the eminent physicist Nevill Mott and their collaboration continued after the war, leading to the publication of a joint book "*Wave Mechanics and its Applications*" (1948). By that time, Ian had returned to Glasgow University to take up a lectureship in Natural Philosophy. He was awarded a DSc in 1948.



Prof. Sneddon's interests were gradually moving from theoretical physics to classical applied mathematics. In 1950, aged just 30, he was appointed the first Professor of Mathematics at what was later to become the University of Keele. However, his heart was always in Glasgow and in 1956 he was appointed to the new Simson Chair of Mathematics (named after the geometer Robert Simson who is commemorated by the Simson Line of a triangle). From then until the end of his days, Prof. Sneddon served the University of Glasgow with great distinction, continuing as an Honorary Senior Research Fellow after his official retirement in 1985.

Prof. Sneddon's research publications amount to several books and over 100 papers in journals and expository articles in edited books. One finds there contributions to nuclear physics and fluid mechanics, elasticity, fracture mechanics; integral transforms, special functions, fractional calculus, ordinary and partial differential equations, integral equations; mixed boundary-value problems, applications of mathematics to biology and medicine. However, as most popular and useful for the wider audience

of mathematicians, engineers and applied scientists, from the first-year students to the experienced lecturers, researchers and practitioners, remain his books. They number double figures and show the width of his knowledge and interests, and his skills in presenting the ideas clearly, a proof of his excellence as a teacher.

In 1951 the large treatise on Fourier Transforms was published, followed a few years later by one on Partial Differential Equations. The Special Functions were an enduring interest and he contributed a volume on this topic to a series of undergraduate texts produced by the Edinburgh firm Oliver and Boyd, a series which was well known to undergraduates of the 60s. In 1972 he published the work entitled "*The Use of Integral Transforms*". The preface says that the book was based on his lectures to postgraduate students of Applied Mathematics, Physics and Engineering given in different periods in the University of Glasgow, North Carolina State University and the State University of New York at Stony Brook.

This book illustrates the point that Prof. Sneddon was by that stage a frequent flyer and world traveler with many of his trips to the United States and Canada. On one such occasion he did some work with Arthur Erdélyi. They showed how the Erdélyi-Kober operators of FC could be used to study systematically dual integral equations of Titchmarsh type such as arising from problems in potential theory. Various authors had treated previously special cases in an ad hoc manner. Erdélyi and Sneddon produced a unified and elegant theory. This and other applications of FC are discussed in Sneddon's wide-ranging survey article "*The use in mathematical physics of Erdélyi-Kober operators and of some of their generalizations*" (<https://doi.org/10.1007/BFb0067097>) in the Proceedings of the 1974 New Haven (first) Conference on Fractional Calculus, edited by Bertram Ross, as well as in his book "*Mixed Boundary Value Problems in Potential Theory*" which appeared in 1966.

Another major contribution by Sneddon was his work editing Russian translations of major texts. He began this work around 1960 and was involved with the translation into English of the five volumes work by V.I. Smirnov, "*A course of Higher Mathematics*". He was also involved with the English translation of works by Gelfond and Linnik. Interestingly, by some sort of symmetry, many of Sneddon's texts were translated into Russian.

Apart from his transatlantic journeys not only to USA, Australia, and Kuwait, but also to Italy and Russia, Prof. Sneddon had a strong affinity with Poland. In recognition of his work in fostering mathematical and cultural ties between Poland and Scotland, he was awarded a Copernicus Medal of Polish Academy of Sciences and made a Commander, of the Order of Polonia Restituta. This was one of many honors awarded to Prof.

Sneddon. He was elected a Fellow of the Royal Society of Edinburgh in 1958 and a Fellow of the Royal Society of London in 1983. He was made an Officer of the Order of the British Empire in 1969 and Commander of the Polish Order of Merit in 1979.

Prof. Sneddon invested a considerable energy and personal interest in the mathematical education of the young students, and particularly for those of engineering. He served as Dean of the Faculty of Science from 1970 to 1972 and as Senate Assessor on the University Court from 1973 to 1977. Sneddon served also on various government committees over a period of 30 years, including as a Scientific Officer, first at the Ministry of Supply, and then at the Ministry of Defense, and at the Council on Scientific Research and Development. During the Second World War he worked in the Cavendish Laboratory and its last year - in what is now Defense Evaluation and Research Agency.

For 14 years he was President of the Scottish - Polish Cultural Association, was known for his wide interests in arts, music, culture and history. Sneddon was for 20 years on the board of the Scottish Opera; he served also on the board of the Scottish National Orchestra, and chaired the BBC Scottish Music Advisory Committee for several years. He was on the board of the Citizens' Theatre in Glasgow until 1997, and at the end of his life associated with Capella Nova, a delightful and increasingly well-known group of singers operating at Strathclyde University! And he used to invite his friends and visitors in Glasgow at lunchtimes in the Glasgow Art Club.

Some of Ian Sneddon's books:

- I. Sneddon, *Fourier Transforms*. McGraw-Hill, N. York (1951).
- I.N. Sneddon, *Special Functions of Mathematical Physics and Chemistry*. Wiley-Intersci., New York (1956), 2nd Ed. Oliver & Boyd (1961).
- I. Sneddon, *Elements of Partial Differential Equations*. McGraw-Hill, London-Tokyo (1957).
- I. Sneddon, *Fourier Series*. Routledge & Kegan Paul, London (1961).
- I. Sneddon, *Mixed Boundary Value Problems in Potential Theory*. North Holland Publ. Co., Amsterdam (1966).
- I. Sneddon and M. Lowengrub, *Crack Problems in the Mathematical Theory of Elasticity*. J. Wiley & Sons Ltd., N. York (1969).
- I. Sneddon, *The Use of Integral Transforms*. McGraw-Hill, N. York (1972).
- I. Sneddon, *The Use of Operators of Fractional Integration in Applied Mathematics*. PWN - Polish Scientific Publishers, Warsaw (1979).

On the occasion of his 70th birthday a special volume: "*Elasticity: Mathematical Methods and Applications*", E. Horwood (1990) was produced, jointly edited by G. Eason, I.N. Sneddon and R.W. Ogden. In

December 1999, on the occasion of his 80th birthday, another special conference was held in his honor. All of his followers and colleagues who had the pleasure of knowing him have own precious memories. They hardly can forget receiving a letter in his own beautiful handwriting, his puckish humor, the warmth of his friendship and the help and encouragement that he gave to so many.

Memorial notes, among many others, were published in *FCAA*, Vol. **3**, No 4 (2000), 469–474, contributed by A.C. McBride, A.A. Kilbas and S.G. Samko, and Ed.-in-Chief. More about biography, can see at

<https://mathshistory.st-andrews.ac.uk/Biographies/Sneddon/>.

2.3. **Bogoljub STANKOVIĆ (1 November 1925 – 16 May 2018).**

Academician B. Stanković, full member of Serbian Academy of Sciences and Arts and distinguished Serbian mathematician joined the Editorial Board of *FCAA* where he served during many years.



During his 93 years, he was a participant and witness for many historical stages. Indeed, he participated in the resistance movement against occupying forces, was arrested in 1944 and welcomed the freedom in Dachau Concentration Camp. He was also a witness of many changes in the historical development of his country after the 2nd World War and during the 90s.

Prof. Stanković studied mathematics at the Belgrade University from 1945 till 1949, when graduated. The same year he became an assistant professor at the Mathematical Institute of the Serbian Academy of Sciences and Arts, where he received his PhD Degree in 1954. Also in 1954 he was one of the founders of the Faculty of Philosophy in Novi Sad and its Department of Mathematics. Actually, he was one of the founders of the

University of Novi Sad where he formally finished his teaching carrier in 1990.

He was the first professor of analysis at the Department of Mathematics, Faculty of Natural Sciences in Novi Sad; Rector of the University of Novi Sad; Dean and Vice Dean of the Faculty of Natural Sciences, Director and Head of the Department of Mathematics; he was also the first president of the Vojvodina Academy of Sciences and Arts; with many other important administrative positions and social activities. His contributions were recognized by the state and crowned by the most prestigious awards and honors of his country for his work in Research, Education and Culture.

After the Second World War, a strong group worked in mathematical analysis in his country being led by Academician Jovan Karamata. Professor Stanković was a member of this group, but he started to work in the abstract operational calculus with applications in the theory of partial differential equations, influenced by the strong French mathematical school during his stay in Paris for almost two years. He entered into novel areas of functional analysis and then worked in these fields with his students and produced several new results. For example, in order to produce a new Tauberian type theorems, it was necessary to enter into a delicate and very rich theory of hyperfunctions, totally new at that time. In this way he practically founded and developed the so-called “Novi Sad school of mathematical analysis”. He was the founder of the mathematical analysis seminar there and was its leader for 51 years.

Prof. Stanković’s main contributions belong to the theory of Mikusinski’s operators, operational calculus, generalized integral transforms, generalized asymptotics and Abelian and Tauberian type theorems. Further, he used his knowledge in the mathematical justification of various type of fractional order equations, and collaborated with Professors Teodor Atanacković and Stevan Pilipović, and the enthusiastic group of younger followers whom they involved into the world of applications of FC in mechanics, special and generalized functions, and mathematical modeling. As products of this fruitful collaboration, some books were published, among them:

- S. Pilipović, B. Stanković, A. Takači, *Behaviour and Stieltjes Transformation of Distributions*. Teubner, Leipzig (1990).
- S. Pilipović, B. Stanković, J. Vindas, *Asymptotic Behaviour of Generalized Functions*. World Sci., New Jersey (2012).
- T.M. Atanacković, S. Pilipović, B. Stanković, D. Zorica, *Vibrations and Diffusion Processes*. ISTE, UK and Willey, USA (2014).
- T.M. Atanacković, S. Pilipović, B. Stanković, D. Zorica, *Wave Propagation, Impact and Variational Principles*. ISTE, UK and Willey, USA (2014).

He contributed with considerable studies on FC, not only by pointing out its application aspects, but also revealing some not so well known results on the special functions of FC. Thus, he reminded Wright's results about extension to negative index of the Wright function, as a participant in the 1st, 1994 (Sofia) conferences TMSF, that is, the conferences that later gave rise to the launch of the *FCAA*. Before, in 1970, he gave a rigorous proof of the Laplace transform pairs involving the Wright functions with first negative parameter (now referred to as Wright function of 2nd kind). On that topic, one can mention some of his articles, as:

- B. Stanković, On the function of E.M. Wright. *Publ. de l'Institut Mathématique, Beograd, Nouvelle Sér.* **10** (1970), 113–124.
- Lj. Gajić, B. Stanković, Some properties of Wright's function. *Publ. de l'Institut Mathématique, Beograd, Nouvelle Sér.* **20** (1976), 91–98.

In the *FCAA* journal, he published a series of papers jointly with his Novi Sad collaborators, mainly on applications of FC, as in: Vols. **4**, No 4 (2001); **7**, No 1 (2004); **7**, No 3 (2004); **10**, No 2 (2007); **17**, No 4 (2014).

Prof. Stanković established strong scientific cooperation with many mathematicians around the world. Especially, he was one of the founders of conferences on generalized functions (GF) – known for years as the GF conferences, the first one in Poland (1963), the second one in Yugoslavia (1964), then in Vienna (2012), and several next conferences in Novi Sad and other parts of former Yugoslavia.

In September 2004, the International Conference “Generalized Functions 2004 - Topics in PDE, Harmonic Analysis and Mathematical Physics” took place in Novi Sad, organized by the University of Novi Sad and Serbian Academy of Science and Arts in honor of 80th anniversary of Acad. Stanković. About 140 participants from 25 countries of Europe, North and South Americas, Asia and Africa, attended the conference with 17 invited lectures and about 100 contributed talks. In July 2014, the international conference “Days of Analysis in Novi Sad” was organized in University of Novi Sad, on the occasion of his 90th birthday. This was the first Russian - Serbian mathematical meeting within the framework of scientific cooperation of Russian and Serbian Academies of Sciences and Arts. Around 60 mathematicians from Austria, Brazil, Bulgaria, Croatia, France, Italy, Macedonia, Monte Negro, Norway, Russian Federation, Serbia, Sweden and United States attended this event.

At the International Conference on Fractional Differentiation “ICFDA 2016” he was honored by the Life Achievement Award named then as “A.A. Kilbas Award” for his merits to FC community. Some biographical data, notes on Acad. Stanković contributions and honors, were published also in previous issues of the *FCAA* journal:

– *Fract. Calc. Appl. Anal.*, Vol. **8**, No 1 (2005); and Vol. **8**, No 1 and No 2 (2005) include papers dedicated to his 80th anniversary available at: <http://www.math.bas.bg/complan/fcaa>, go to Vol. **8**.

– *Fract. Calc. Appl. Anal.*, Vol. **18**, No 1 (2015); Editorial Note, at: <https://www.degruyter.com/view/j/fca.2015.18.issue-1/issue-files/fca.2015.18.issue-1.xml>.

2.4. **Rudolf GORENFLO (31 July 1930 – 20 October 2017).**

Prof. Rudolf Gorenflo, Institute of Mathematics – Free University Berlin, Germany, was among the founding editors of our journal *FCAA* since its beginning. With his deep expertise and experience both in research and educational activities, he was not only a supporter, active reviewer and author in *FCAA* but also helpful and wise adviser on how to deal in delicate situations, and to encourage beginners.



Rudolf Gorenflo was born in Friedrichstal near Karlsruhe, Germany. In the very hard post-war years Rudolf entered the Technical University in Karlsruhe and started to learn there mathematics and physics, but then decided to become a mathematician. Still he took part in several courses in theoretical physics and engineering sciences - an experience that helped him as a mathematician to always choose a right strategy for solving difficult problems. In 1956, Rudolf Gorenflo completed his diploma thesis and entered a doctoral course at the Technical University in Karlsruhe. His doctoral thesis was successfully defended in 1960. In 1961-1962, he worked for the Standard Electric Lorenz Company, Stuttgart, in the department of informatics. Beginning from 1962 Rudolf Gorenflo dealt mainly with physics combined with mathematical modeling, and numerical and computer simulations at the Max-Planck Institute for Plasma Physics in Garching near

Munich. His abilities and desire for teaching were approved in 1970 at the Technical University in Aachen with his habilitation in mathematics. In Aachen he got also his first professorship (1971-1973).

In 1973 Rudolf Gorenflo became a full Professor at the Free University of Berlin. He was leader of three FU-sponsored research projects. His valuable contributions, results and achievements both in research, in teaching, as well as in social life at the Free University and for the international scientific community cannot be overestimated.

During his time at the University in Aachen and then at the University in Berlin, Prof. Gorenflo's primary aim was to share his understanding of the applied mathematics with his students and colleagues. His main research interests were divided between: integral equations and the neighboring subject of inverse and ill-posed problems, difference schemes for parabolic differential equations, and different topics in FC.

Within his research in the field of integral equations, Prof. Gorenflo considered them from different viewpoints, first, as a tool for modeling processes with a "memory", second, as a deep mathematical theory, and third, as an application of the developed numerical methods to the investigation of the qualitative behavior of their solutions. This combination of the different points of view led to a series of deep results presented in his book with Sergio Vessella about Abel integral equations, and in his book with D.D. Ang, V.K. Le, and D.D. Trong on inverse problems in potential theory and heat conduction.

These interests were also stimulated by research visits to Prof. R. Ruttman at the University of Massachusetts in Dartmouth (USA) in 1992 and 1994, to Prof. B. Rubin in Jerusalem 1993 and 1995, and to Prof. M. Yamamoto in Tokyo 1995. And then, by his participation in an international workshop on Fractals and Fractional Differentiation organized by A. Le Méhauté and A. Oustaloup in Bordeaux (France) in summer of 1994. In Bordeaux he made acquaintance with Prof. Francesco Mainardi finding in him a collaborator, a co-author, and a friend for many years.

Beginning from this time, the main research activities and achievements of Prof. Rudolf Gorenflo were devoted to FC. First he began working on ordinary fractional differential equations and related special functions, and later extended his interests to many other actual research topics of FC, its applications and generalizations. Among other things, he investigated special functions of FC like the Mittag-Leffler and the Wright functions both from the analytical and numerical viewpoints, developed numerical methods for the integral and differential equations of the fractional order, constructed operational calculi for FC operators, considered the initial- and boundary-value problems for fractional differential equations. In all

cases he was interested not just in the underlying mathematics, but also in the applications of the results, too. In particular, in his works and in the works of his co-authors some important models for the adequate description of anomalous physical processes like slow and fast relaxation, oscillation, and diffusion in terms of fractional differential equations were investigated. Nowadays we can already speak about a wide collection of FC models in physics, engineering, medicine, and other sciences even including finance. Without any doubts, several pioneering works in this area were done by Prof. R. Gorenflo and his co-authors.

Later on, in collaboration with Prof. F. Mainardi and his students and other colleagues, Prof. R. Gorenflo started to investigate the partial fractional equations (fractional in time or in space, or in both time and space) that are suitable for modeling non-classical diffusion processes. In the framework of this collaboration, various types of random walk models were devised and analyzed.

Under the auspices of the International Federation of Automatic Control (IFAC), during the 4th IFAC Workshop on Fractional Differentiation and Its Applications (FDA'10), Prof. R. Gorenflo was honored by the international FC community for his valuable contributions to this field. The special session "Fractional Calculus: Basic Theory and Neighboring Fields" of the FDA'10 was completely dedicated to Prof. R. Gorenflo on the occasion of his 80th anniversary. Moreover, he received an FDA'10 award in the category "Professional Life Achievements" that was designed to recognize and appreciate excellence in FC.

Main fields of interest and research: Mathematics and its Applications; Fractional Calculus and its Applications; Volterra integral Equations; Differential and Integral Equations; Numerical Mathematics; Probability and Stochastic Processes.

Books published in the area of *FCAA* journal:

- R. Gorenflo and S. Vessella, *Abel Integral Equations: Analysis and Applications*. Lecture Notes in Math., Vol. 1461, Springer-Verlag, Berlin etc. (1991).
- D.D. Ang, R. Gorenflo, V.K. Le, D.D. Trong, *Moment Theory and Some Inverse Problems in Potential Theory and Heat Conduction*. Lecture Notes in Math., Vol. 1792, Springer-Verlag, Heidelberg etc. (2002).
- R. Gorenflo, A. Kilbas, F. Mainardi, S. Rogosin, *Mittag-Leffler Functions, Related Topics and Applications*. Springer-Verlag, New York (2014), 2nd Ed. (2020).

For the detailed biographies of Professor Rudolf Gorenflo, including list of his publications, we refer for example to some anniversary addresses:

– Yu. Luchko, F. Mainardi and S. Rogosin, Professor Rudolf Gorenflo and his contribution to fractional calculus. *Fract. Calc. Appl. Anal.* **14**, No 1 (2011), 3–18; <https://www.degruyter.com/document/doi/10.2478/s13540-011-0002-z/html>;

– F. Mainardi, Professor Rudolf Gorenflo: Citation for His 85th Birthday, xv-xviii. In: Pei Dang, Min Ku, Tao Qian, Luigi G. Rodino (Eds.), *New Trends in Analysis and Interdisciplinary Applications*, Selected Contributions of the 10th ISAAC Congress, Macau 2015, Springer-Birkhauser (2017);

and to: https://en.wikipedia.org/wiki/Rudolf_Gorenflo,
<http://www.fracalmo.org/gorenflo/>.

Memorial notes and condolences were presented by many of Prof. Gorenflo's colleagues and FC friends, as collected by Yu. Luchko, in *FCAA*, Vol. **20**, No 6 (2017), 1316–1320, <https://www.degruyter.com/document/doi/10.1515/fca-2017-0069/html>.

2.5. Danuta PRZEWORKSKA-ROLEWICZ (25 May 1931 - 23 June 2012).

Prof. Danuta Przeworka-Rolewics was among the Founding Editors of *FCAA* journal since 1998, and served to its progress until the end, independently of her long-time illness, and published herself several articles therein.



Let us remind her rich biography of a brave woman. She was born in Warsaw, in the family of a world-known archaeologist Stefan Przeworski, who was killed by Nazis' January 1940. Obtained M.A. in Mathematics at the University of Warsaw, PhD at the Institute of Mathematics of the Polish Academy of Sciences in 1958, D.Sc. (habilitation) in 1964 and the

title of Professor, at the same institute, granted by the Council of State in 1974.

In 1952 she married Stefan Rolewicz, another famous Polish mathematician, Professor at the Institute of Mathematics of the Polish Academy of Sciences, publisher of Polish mathematical journals and author of several popular works and books.

For her activities (yet as a child) in the Resistance Movement during the Second World War and the Warsaw Uprising in 1944, Prof. Danuta was distinguished in 1982 by the Warsaw Uprising Cross. Other obtained awards are: St. Banach award of the Polish Mathematical Society (with S. Rolewicz) in 1968; award of the Polish Academy of Sciences in 1972 (for a book); a common award of Akademie der Wissenschaften der DDR and the Polish Academy of Sciences in 1978.

Nine persons received Ph.D. under her supervision, other 3 professors were granted the second scientific degree in collaboration with her, she gave a variety of courses in Faculty of Cybernetics of Technical Military Academy in Warsaw and many invited lectures as visiting professor abroad (longer visits in Canada, Germany, Australia, and other countries).

Among her organization activities were the periodic international conferences held in Poland as “Functional-Differential Systems and Related Topics” (1979, 1981, 1983, 1985), “Different Aspects of Differentiability” (1993, 1995), “Algebraic Analysis and Related Topics” (1999), as well as editing of their proceedings. Along with in *FCAA* journal, she was also a member of the editorial boards of *Demonstratio Mathematica*, *Scientiae Mathematicae*, *Matematica Japonica*.

Her fields of interest and contributions were: singular integral equations, algebraic methods in analysis / operational calculus, functional analysis, and others.

Prof. D. Przeworska-Rolewicz authored in these areas more than 200 articles and several books, among them close to the *FCAA* are:

- D. Przeworska-Rolewicz, with S. Rolewicz, *Equations in Linear Spaces*. Monografie Matem. 47, PWN, Warsaw (1968).
- D. Przeworska-Rolewicz, *Equations with Transformed Argument. An Algebraic Approach*. PWN & Elsevier, Warsaw-Amsterdam (1973).
- D. Przeworska-Rolewicz, *Linear Spaces and Linear Operators* (in Polish). WNT, Warsaw (1977). Electronic 2nd Ed., IM - PAN (2007).
- D. Przeworska-Rolewicz, *Introduction to Algebraic Analysis and its Applications* (in Polish). WNT, Warsaw (1979).
- D. Przeworska-Rolewicz, *Shifts and Periodicity for Right Invertible Operators*. Res. Notes in Mathematics, 43; Pitman Adv. Publish. Program, Boston-London-Melbourne (1980).

- D. Przeworska-Rolewicz, *Algebraic Analysis*. PWN & D. Reidel, Warsaw-Dordrecht (1988).
- D. Przeworska-Rolewicz, *Spaces of D-Paraanalytic Elements*. Dissertationes Math. 302, Warsaw (1994).
- D. Przeworska-Rolewicz, *Logarithms and Antilogarithms. An Algebraic Approach*. With Appendix by Z. Binderman. Kluwer Academic Publishers, Dordrecht-Boston-London (1998).

A more detailed CV and list of publications of Prof. D. Przeworska-Rolewicz, on occasion of her 70th anniversary, and a Memorial note, were published in *FCAA*, Volumes 4, No 2 (2001), 255–266; 15, No 4 (2012), 534–535.

2.6. Gary Francis ROACH (8 October 1933 – 17 March 2012).

Prof. Gary F. Roach, a distinguished British mathematician and academic, was also a Honorary member of Editorial Board of *FCAA* journal.



He was born in South Wales, spend some time with his family in Persia, after the Second World War returning back to Britain. After gaining his BSc honors degree in Mathematics and Physics from the University of Wales in 1955, he joined the Education Branch of the Royal Air Force, attaining the rank of Flight Lieutenant, before moving on, in 1958, to a post as Research Mathematician with the British Petroleum Company. While working for BP, he studied part-time at Birkbeck College in London and was awarded an MSc with distinction in 1960. In 1961 he accepted his first full-time academic post as a Lecturer in Mathematics at the University of Manchester Institute of Science and Technology (UMIST) from where he gained his PhD in 1964. His thesis, entitled “*Dynamical Theory of Viscous*

Tides in Close Binary Systems” led to the immediate award of a Fellowship of the Royal Astronomical Society. In 1966-67 he spent a year as a Visiting Professor at the University of British Columbia where he worked with Robert Adams. On returning to the UK, Gary joined the staff of the University of Strathclyde in Glasgow. He was promoted to Senior Lecturer in 1971 and then to Reader in 1972. He was appointed Professor in 1979 and in 1982 was awarded the prestigious 1825 Chair of Mathematics in succession to Donald Pack.

Prof. Roach had a long and distinguished research career in Applied Analysis, leading to several books, many papers and contributions to conference proceedings and a number of patents. His first book, “*Green’s Functions*”, was published in 1970, with a second edition appearing in 1981, and the book remains a standard reference in the field to these days. His experience in *Industry*, both in his early career and through subsequent consultancy with bodies such as the Ministry of Defense, Ferranti, ICI and British Gas, led to the study of many problems of practical importance in which applications of Functional Analysis and Operator Theory played a major role. Much of his consultancy work was not published.

The classical Scattering Theory was a major strand of his research. He studied linear and nonlinear evolutionary equations, modeling both stationary and time-dependent scattering processes involving moving boundaries and time-dependent potentials. A major focus was on Inverse Problems in radar, sonar and ultrasonic testing. In the course of this research he established many fruitful collaborations, with Ralph Kleinman in Delaware, Rolf Leis in Bonn, George Dassios in Patras, Ioannis Stratis in Athens, and other scientists.

Another of Prof. Roach research interests was the Multi-parameter Spectral Theory. Initially inspired by F.V. Atkinson’s seminal 1964 paper and subsequent textbook, “*Multiparameter Eigenvalue Problems*”, he collaborated in this area with Patrick Browne and Paul Binding (Calgary) and Mel Faierman (Witwatersrand) as well as leading his own group of research students in Strathclyde.

From 1979 until his retirement in 1996, Gary led the Applied Analysis Group in the Strathclyde University, Glasgow. He instituted a series of annual workshops and conferences, covering the group’s various research interests, held in the beautiful surroundings of Ross Priory on the shores of Loch Lomond. One of them was especially, the *Second International Conference on Fractional Calculus* in 1984. The Proceedings of these meetings were produced under Gary’s editorship. Another notable event for the group was hosting a *Conference on Evolution Equations* in 1994, which was

a sequel to a similar conference organized by Jerry Goldstein and colleagues at Louisiana State University in Baton Rouge the previous year.

The University of Strathclyde had a long-standing exchange agreement with the Technical University of Łódź, which Gary embraced with enthusiasm. There were regular visits by staff in both directions, while 3 students came from Łódź to study for Strathclyde PhDs under Gary's supervision, most notably Jacek Banasiak. In recognition of his contributions to the exchange agreement and his eminence in the field of Applied Analysis, Gary was awarded an Honorary Doctorate (ScD) by Łódź in 1993. This was in addition to the DSc which he was awarded by the University of Manchester in 1991 in recognition of his major research achievements. His relations and engagements to Polish mathematicians, led also to his friendship with the other honorary *FCAA* editor, Prof. D. Przeworska-Rolewicz.

Prof. Roach achieved many other distinctions and awards. He was elected a Fellow of the Royal Society of Edinburgh in 1977. He gained the prestigious award of a Killam Research Professorship in Canada, the first mathematician to receive this accolade. He was a Fellow of the Institute of Mathematics and its Applications and of the Royal Society for encouragement of Arts, Manufactures and Commerce.

Apart from being a prolific author in his own right, Gary was heavily involved in the editing of journals and books' series. In particular, he was a founding managing editor of "*Mathematical Methods in the Applied Sciences*" and continued to oversee its development for over 25 years. Along with in *FCAA* editorial board, he served also on the editorial board of "*Applicable Analysis*" and on the Advisory Board for the highly regarded *Pitman/Longman Series of Monographs and Research Notes*. On his retirement in 1996, Gary was appointed Emeritus Professor. He retained an office in the Mathematics Department in Strathclyde University for a number of years, continuing his research and his editorship. Books entitled "*Wave Scattering by Time Dependent Perturbations: An Introduction*" and "*An Introduction to Echo Analysis: Scattering Theory and Wave Propagation*" appeared in 2007 and 2008, respectively. His last book "*Mathematical Analysis of Deterministic and Stochastic Problems in Complex Media Electromagnetics*", jointly authored with I.G. Stratis and A.N. Yannacopoulos, was published in 2012 by Princeton University Press. Sadly, he never saw the book in print.

In all, Prof. Gary F. Roach wrote 5 books, edited 8 others, authored over 150 research papers and supervised 20 PhD students.

He gave loyal and distinguished service to many bodies at the local, national and international levels. Within the University of Strathclyde, he

was Head of the Department of Mathematics from 1980 to 1982 before being appointed the first Dean of the new enlarged Faculty of Science from 1982 to 1985. Prof. Roach served on both the Senate and the University Court. He was convener of the Military Education Committee (joint with the University of Glasgow) from 1992 to 1995. Outwith the University, he was President of the Edinburgh Mathematical Society in Session 1981-1982, and served as Convener of the Conference of Professors of Applied Mathematics and of the University and Colleges Admissions Service (Scotland) Coordinating Committee.

Prof. Roach held office in a range of charitable organizations. In 1997, he was Deacon of the Incorporation of Bonnetmakers and Dyers, one of the 14 Incorporated Crafts of the Trades House of Glasgow. In this role he played an active part in the City's affairs for that year, with an emphasis on charitable work and education.

In addition to all these activities, Gary pursued various hobbies. After Mathematics, classical music was perhaps his greatest passion. He was a member of a philatelic club called The Vikings and specialized in the stamps of the Faroe Islands. Another interest was radio-controlled model planes. At flying displays, he acted as air traffic control, ensuring that no two planes were using the same radio frequency. Gary was an enthusiastic and talented sportsman. His first love was rugby and as a teenager, he was invited to participate in trials for the Welsh Under-21s. Unfortunately, a week before this event, he suffered a serious neck injury that ended his rugby career.

Some of Prof. G.F. Roach books:

- G.F. Roach, *Green's Functions: An Introductory Theory with Applications*. Van Nostrand, London and N. York (1970), 2nd Ed., Cambridge Univ. Press (1982).
- A.C. McBride, G.F. Roach (Editors), *Fractional Calculus (Proc. of International Conference held in Ross Priory – University of Strathclyde, Scotland, August 1984)*. Research Notes in Mathematics No 138, Pitman (1985).
- A.C. McBride, G.F. Roach (Editors), *Recent Developments in Evolution Equations*. Pitman Research Notes in Mathematics No 324, Longman, London (1995).
- G.F. Roach, *Introduction to Linear and Nonlinear Scattering*. Pitman Monogr. and Surveys in Pure and Appl. Math. No 78, Longman, London (1995).
- G.F. Roach, *Wave Scattering by Time-Dependent Perturbations: An Introduction*. Princeton Ser. in Appl. Math., Princeton Univ. Press (2008).

– G.F. Roach, I.G. Stratis, A.N. Yannacopoulos, *Mathematical Analysis of Deterministic and Stochastic Problems in Complex Media Electromagnetics*. Princeton Ser. in Appl. Math. (2012).

A more detailed CV, list of publications and congratulating addresses for Prof. G.F. Roach's 70th and 75th anniversaries were published in *FCAA*, Vols. **6**, No 4 (2003), 341–354; **11**, No 3 (2008), 234–236; and a Memorial Note in Vol. **15**, No 3 (2012), 352–355.

2.7. Anatoly A. KILBAS (20 July 1948 – 28 June 2010).

Prof. Anatoly Kilbas was an important expert and author, and one of the most active and enthusiastic editors of the journal *FCAA*.



Anatoly Alexandrovich Kilbas was born in Minsk, Belarus. In 1966 he has finished a secondary school in Borisov, Minsk region, and entered at the same year the mathematical department of the Belarusian State University in Minsk. He studied at the mathematical department of the Belarusian State University from 1966 till 1971, and all his next academic and research career was developed at the same university, leaving it for a long period only a few times for scholarships and research visits in USA, China, Japan, Spain.

In 1973 Anatoly Kilbas entered a post-graduate course at the Belarusian State University (scientific adviser – academician Fedor Dmitrievich Gakhov) and in 1975 he defended a PhD thesis (Candidate of Sciences dissertation) entitled “*Operators of Potential Type with Power-Logarithmic Kernels and Integral Equations Resolved in Closed Form*”. In 1995 he had his second degree dissertation (Doctor of Sciences), “*Operators of Fractional Integration: Asymptotic and Composition Properties and Applications*”. In

1997 he was awarded by the professorship at the Chair of the Theory of Functions, and since 2002 he headed this chair.

Professor Kilbas was a worldwide known scientist. His contributions to the theory of integral equations, fractional integro-differentiation, fractional differential equations, integral transforms and special functions are highly estimated by the international mathematical society. He authored more than 300 research articles, and 6 monographs published at leading publishers, as Gordon and Breach Science Publishers, Chapman and Hall/CRC Press, Elsevier. The monograph:

– S.G. Samko, A.A. Kilbas, O.I. Marichev, *Fractional Integrals and Derivatives and Some of Their Applications*. Gordon and Breach. Yverdon (1993); 1st Ed. in Russian, *Integrals and Derivatives of Fractional Order and Some of Their Applications*. Nauka i Tekhnika, Minsk (1987)

became a basic reference book for many experts in fractional analysis and its applications all over the world. Among his other books, are:

– B. Bonilla, A.A. Kilbas, J.J. Trujillo, *Calculo Fraccionario y Ecuaciones Diferenciales Fraccionarias* (In Spanish) [*Fractional Calculus and Fractional Differential Equations*]. UNED, Madrid (2003).

– A.A. Kilbas, M. Saigo, *H-Transforms. Theory and Applications*. Ser. Analytic Methods and Special Functions, Vol. 9, Chapman and Hall/CRC, Boca Raton, FL (2004).

– A.A. Kilbas, *Integral Equations* (In Russian). Universitetskoe, Minsk (2005).

– A.A. Kilbas, H.M. Srivastava, J.J. Trujillo, *Theory and Applications of Fractional Differential Equations*. North-Holland Math. Studies, Vol. 204, Elsevier, Amsterdam (2006).

– O.I. Marichev, A.A. Kilbas, O.A. Repin, *Boundary Value Problems for Partial Differential Equations with Discontinuous Coefficients* (In Russian). Samara Economical University, Samara (2008).

– R. Gorenflo, A. Kilbas, F. Mainardi, S. Rogosin, *Mittag-Leffler Functions, Related Topics and Applications*. Springer-Verlag, New York (2014), 2nd Ed. (2020).

His fruitful research cooperation with scientists from Canada, Germany, India, Italy, Japan, Korea, Russia, Spain and USA led to numerous works.

Professor Anatoly Kilbas presented his results on international conferences in different countries. He was a member of Organizing Committee and session organizer at many international scientific forums. In 2005 Anatoly Kilbas was elected a member of the International Advisory Board of the International Society of Analysis, its Applications and Computation (ISAAC). He was the main organizer of successful conferences “*Boundary*

Value Problems, Special Functions and Fractional Calculus” (1996), “*Analytical Methods of Analysis and Differential Equations*” (AMADE, 1999, 2001, 2003, 2006, 2009) held in Minsk. He was editor of 14 books of conference proceedings, and a member of Editorial Board of well-known international journals “*Integral Transforms and Special Functions*”, *FCAA*, “*Advances in Applied Mathematical Analysis*” and many others.

Anatoly Kilbas was actively working with young mathematicians either in Belarus or in another countries. It is worth mentioning that 16 of his post-graduate students successfully defended their PhD Thesis in the period from 1985 to 2010.

Anatoly Kilbas had numerous brilliant human abilities. For instance extremely good memory on scientific results, events and facts, people. He could declaim the poetry of many of his favorite poets. From time to time he compiled verses by himself. He was a good sportsman, the life and soul of any company. He had many plans to realize. Books, scientific projects, works of students, new conferences remained unfinished. A special issue of our journal *FCAA*, Vol. **11**, No 4 (2008), 369–378, devoted to his 60th anniversary contains, among other works as his CV, friends’ congratulations, there is a publications’ list:

http://www.math.bas.bg/complan/fcaa/volume11/fcaa114/Kilbas_Publs.pdf.

See about some of his research works also at:

<https://www.researchgate.net/scientific-contributions/Anatoly-A-Kilbas-53615838>.

Memorial notes can be found in *FCAA*, Vol. **13**, No 2 (2010), 221–223;

http://www.math.bas.bg/complan/fcaa/volume13/fcaa132/Kilbas_Obituary.pdf.

2.8. Wen CHEN (21 February 1967 – 22 November 2018).

Prof. Wen Chen was a member of editorial board of *FCAA*. As a support to the FC community was his initiative to organize the *International Conference “Fractional Differentiation and Applications 2012” (FDA 2012)* and to host it at Hohai University, Nanjing – China. Leading and working with a big group of enthusiastic collaborators he created, edited and published monthly, since 2011, the *Electronic Newsletter “FDA Express”*, available <http://jsstam.org.cn/fda/>, now kept on by his followers.

Prof. Wen Chen graduated from Huazhong University of Science and Technology in July 1988 with a bachelor degree majored in engineering mechanics. Then, he received a master’s degree in February 1994 and a doctorate in February 1997, from Shanghai Jiao Tong University. He 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 included computational mechanics, hydrodynamics, and acoustics, as summarized in his more than 300 academic journal papers and 6 monographs with more than 3000 non-self SCI citations, and 9 patents and 12 software copyrights. His interests and research directions centered on fractional-order physical modeling, RBF-based numerical simulation, anomalous diffusion and non-local and Lévy statistics of soft matter mechanics, fractional Brownian motion, scientific computations and computational mechanics.



Wen Chen's ResearchGate profile can be found at:

https://www.researchgate.net/profile/Wen_Chen39/publications.

Prof. Wen Chen was Associate director of "Chinese Society of Environmental Mechanics", the former TC chair of computational mechanics software under China Mechanics Society, the IFAC TC member on Linear Control Systems.

Prof. Wen Chen had more than 20 years working experiences in a variety of national laboratories, industries, and universities, including 6 years at overseas research entities, as in Singapore, Norway, and Hong Kong. He organized 4 international academic conferences and workshops, many mini-symposia as well as 2 domestic workshops and has traveled to over 20 countries for various academic visits. He was the principal investigator of 30 academic or industrial projects and served as Associate Editor or on Editorial Board of 12 journals, among which 5 international journals are indexed by SCI (including *FCAA*). 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 was a recipient of China National Funds for Distinguished Young Scientists. He was on the 2014, 2015, and 2016 lists of the most cited Chinese researchers.

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

He had a long fight with illness, and the FC community lost him so young. A Memorial Note was published in *FCAA*, Vol. **21**, No 5 (2018), 1149–1150. A special issue of *FCAA*, Vol. **22**, No 6 (2019) was dedicated to his memory, <https://www.degruyter.com/journal/key/FCA/22/6/html>, with Guest Editors YQ Chen, Ch. Li, I. Podlubny and HG Sun, as his close collaborators and members of editorial board. There, at pp. 1437–1447, one can find also more detailed biography and description of his main contributions to the field of applied FC, a list of selected publications as well as a Report on the FC related meeting “Workshop dedicated to the late Prof. Wen Chen” at Nanjing, 8 August 2019; along with a Review on his latest book:

– Yingjie Liang, Wen Chen, Wei Cai, *Hausdorff Calculus: Applications to Fractal Systems*. Ser. Fractional Calculus in Applied Sciences and Engineering, Vol. 6, De Gruyter (2020),
<https://www.degruyter.com/view/product/506187>.

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- [2] V. Kiryakova (Convenor of Round Table Discussion), A long standing conjecture failed? In: *Transform Methods & Special Functions, Varna’96* (Proc. 2nd Internat. Workshop), IMI – Bulg. Acad. Sci., Sofia (1998), 584–593; at https://www.researchgate.net/publication/280153125_A_long_standing_conjecture_failed.

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¹ *Institute of Mathematics and Informatics
Bulgarian Academy of Sciences, Acad. G. Bontchev Str., Block 8
Sofia 1113 – BULGARIA
e-mail: virginia@diogenes.bg*

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² *Institute of Engineering, Polytechnic of Porto
Dept. of Electrical Engineering
Rua Dr. António Bernardino de Almeida, 431
4249 – 015 Porto, PORTUGAL
e-mail: jtm@isep.ipp.pt*

³ *Dept. of Mathematics, Physics, and Chemistry
Beuth Technical University of Applied Sciences Berlin
Luxemburger Str. 10, Berlin – 13353, GERMANY
e-mail: luchko@beuth-hochschule.de*

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