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The number 4 of the Volume 5 (2002) of FCAA (Guest Editor Prof. Rudolf GORENFLO) is dedicated to the 60-th birthday of Prof. Francesco MAINARDI of the Editorial Board of FCAA. The contents of the issue is available on the WEB site of FCAA (<http://www.diogenes.bg>) and on the WEB site devoted to FRActional CALculus MOdelling (<http://www.fracalmo.org>), see NEWS 021202.

We report the ADDRESS by Prof. Virginia KIRYAKOVA (the Managing Editor), p. 357, and the CONGRATULATION by Prof. Rudolf GORENFLO (the Guest Editor), pp. 358-366.

60th ANNIVERSARY
of Professor FRANCESCO MAINARDI

Prof. **Francesco MAINARDI** (Department of Physics, University of Bologna – Italy), **born 29 December 1942**, is celebrating this December his **60th Jubilee!**

I met him for the first time at our 1st International Workshop “Transform Methods & Special Functions” (TMSF) in August 1994 near Sofia, and since then our FC-based friendship passed through the discussions at the 2nd and 3rd “TMSF” Workshops, establishment of the journal “Fractional Calculus & Applied Analysis” (FCAA), its development, fruitful collaboration including the so-called “pre-night thoughts” in a mid-night e-mail correspondence.... Determining himself as “a dirty mathematician”, an applied scientist among mathematicians, and a mathematician among applied scientists (in particular, physicists), as a member of Editorial Board of “FCAA” he happened to be the invaluable bridge between the representatives of the different views on FC and its applications.

I am very grateful to Francesco not only for joining our Editorial Board and his constant contributions to “FCAA”, but as a matter of fact, for stimulating me with his enthusiasm toward FC’s applications to give rise and keep on working for such a journal!

Virginia Kiryakova, *Managing Editor of “FCAA”*

P.S I like also to express my personal gratitude to Professor Rudolf Gorenflo, The GUEST EDITOR of the issue, who took on himself almost all the heavy (but as I see noe, so fruitful!) work of inviting, collecting and reviewing the papers contributed to this happy occasion. I hope our readers would enjoy it as a further successful attempt in promoting of the beloved FC, especially towards its applications.

FRANCESCO MAINARDI's 60th ANNIVERSARY: CONGRATULATION
by Rudolf GORENFLO

Let us convey our wholehearted congratulations to our colleague as a scientist and member of our Editorial Board, Professor FRANCESCO MAINARDI, *on the occasion of his sixtieth birthday on December 29, 2002.*

It was in summer 1994 in Bordeaux, at a conference on Fractals, that I (Rudolf Gorenflo) met Francesco. To our surprise we discovered that independently we had treated the fractional relaxation-oscillation equation and investigated relevant properties of the Mittag-Leffler function. Enjoying Bordeaux red wine we exchanged opinions and experiences and then decided to collaborate in the fascinating field of fractional differential equations and their applications, a collaboration that was widened my view to their importance outside mathematics. Since 1995 we so have an active and fruitful collaboration between Bologna and Berlin, with many mutual visits, to our personal and our students' profit, as can be seen from our publications of recent years. Since then, every year I enjoyed working a few weeks in beautiful Bologna, in Europe's oldest university, meeting his lovely family, occasional excursions to nice other places in Northern Italy, in particular to the Adriatic coast (Pinarella di Cervia).

In his research activity (started in the late sixties) Francesco Mainardi has treated problems of mathematical physics and applied mathematics including linear dispersive waves, asymptotic methods, special functions, fractional calculus, stochastic processes and anomalous diffusion. His main results have been applied in several fields from continuum mechanics (seismology, biomechanics, fluid mechanics) to statistical physics and recently to "econophysics".

His teaching activity, after a few years spent at the Faculties of Engineering of the Universities of Ancona and Bologna, has been devoted to Physics students at the Faculty of Science of the University of Bologna where from 1975 he has continued to give courses of Mathematical Physics and Applied Mathematics for un-graduated and graduate students.

He graduated in Theoretical Physics in November 1966 at the University of Bologna with a Thesis on the theory of the group $SU(3)$ for explaining the existence of quarks and on its application to electro-magnetic interactions (see [-1]). For 2 years he was engaged in the group of Professor A. Zichichi for research in elementary particle physics (see [0]), which was and remains still nowadays the most relevant branch of physics in Italy.

In 1969 he left this research field preferring the classical topics of mathematical physics, like hereditary continuum mechanics and wave theory, but without leaving his original Department of Physics. Here in 1971 he achieved his advanced degree in Physics (Diploma of the "Scuola di Perfezionamento in Fisica", a sort of Ph. Doctorate, that in Italy was introduced much later, only in 1984!). His second thesis (supervisor Professor M. Caputo) treated the introduction of derivatives of real order in the constitutive equations of linear viscoelastic media with application in the rheology of the Earth, and it was published in 1971 through 2 papers (see [1-2]).

In those years the applications of what nowadays is well known as fractional calculus were not understood and appeared (to the larger part of physicists) a ridiculous (mathematical) topic without any physical basis or justification. On the other hand no specific treatise on theory and applications of fractional calculus was available! What he found a fascinating topic (the "fractional relaxation" exhibiting a power law time decay through Mittag-Leffler type functions) did not yet meet any interest from most physicists!

In view of this, but over all attracted from the theory of wave propagation in the presence of dissipation and anomalous dispersion, he started a research activity in this field, obtaining relevant and original results. To promote this research field *he organized as a main chairman three European Mechanics Colloquia in Italy* (1980 in Taormina with G. Pallotti, 1984 in Rimini with H. Buggisch, 1988 in Bologna with the late D.G. Crighton). Related to the first EUROMECH he edited a book in the Pitman series of Research Notes in Mathematics (No 52), entitled "*Wave Propagation in Viscoelastic Media*".

It was in 1993 that he come back to his first topic (i.e. the application of fractional calculus) when he became aware of the increasing literature (not always without errors or misunderstandings) on *the application of fractional operators inspired by the fashion of fractals*. His former topic was the treatment of the the so-called time-fractional diffusion-wave equation (in one dimension) in order to obtain its fundamental solution (the Green function) in a reasonable form to be plotted as a function of the space-time variables depending on a unique parameter: the order of the fractional time derivative. So doing he simplified and visualised (for the first time!) the cumbersome solution that was expressed in terms of Fox H functions in the fundamental 1989 paper by Schneider and Wyss. In fact he was able to (re)-discover (in an independent way) a class of Wright-type functions, that, together with the Mittag-Leffler type functions, are nowadays considered the basic transcendental functions of the fractional calculus. The summer of 1994 was relevant for his research activity in the theory and applications of fractional calculus because of his participation at three international workshops:

1. on *Fractals*, organized by A. Le Mehaute and A. Oustloup in Bordeaux, France;
2. on *Fractional Calculus*, organized by I. Podlubny and himself in the framework of the 14th World Congress on Computational and Applied Mathematics, in Atlanta, Georgia, USA;
3. on *Transform Methods and Special Functions* (TMSF94), organized by P. Rusev, I. Dimovski and V. Kiryakova in Sofia, Bulgaria.

In particular, it was in Bordeaux that he made each other's acquaintance and I found in him a very inspiring mathematical physicist. So we came to collaborate first in treating in an applicable way the most simple initial value problems for the basic differential equations of fractional order (fractional relaxation and fraction oscillations). This collaboration was soon re-inforced with the organization of joint and individual lecture notes for a *CISM Course* organized by A. Carpinteri and Mainardi himself (International Centre for Mechanical Sciences, Udine, Italy, 1996) to explore the possible connections between *Fractals and Fractional Calculus in Continuum Mechanics*.

Then our collaboration continued in the fascinating world of random walks related to anomalous diffusion problems, involving space-fractional operators and stable probability distribution. Our students, co-workers and visitors took profit from this collaboration for their theses and joint relevant papers. For example, Mainardi, Luchko and Pagnini treated the (for both of us originally cumbersome) Fox H -functions providing the fundamental solution of the more general space-time fractional diffusion-wave equation in terms of plottable functions interpreted as probability densities evolving in time. Furthermore he (with Pagnini) has re-validated the pioneering role of Salvatore Pincherle (Professor of Mathematics in Bologna from 1880 to 1928) with respect to Mellin-Barnes integrals and Meijer G - functions.

Francesco Mainardi has been the main promoter of the WEB site devoted to the *FRA*ctional *CAL*culus *MO*delling (<http://www.fracalmo.org>), that from its creation (the very end of 2000) has attracted the attention and the interest of many researchers in Fractional Calculus. He is also associated to the WEB sites on Econophysics (<http://www.econophysics.org>) and on Physics of Complex Systems at the University of Bologna (<http://www.physycom.unibo.it>).

To celebrate his 60-th birthday an Interdisciplinary Workshop entitled "*From Waves to Diffusion and Beyond*" will be held at the University of Bologna (Dept. of Physics) on 20 December 2002. Invited speakers include former students and Italian collaborators of Francesco, who are nowadays active in Italy. The title of this workshop somehow reflects the various topics treated by him and his co-workers from problems of wave propagation and diffusion to special functions, fractional calculus and random walk models applied to finance. The programme is available in a NEWS of FRACALMO WEB site.

Francesco has continued to be attracted by travelling for scientific purposes: he has visited many foreign qualified Institutions and has attended a relevant number of Conferences most of which outside Italy.

Rudolf Gorenflo, *Guest Editor of this FCAA number,*
Free University of Berlin, First Mathematical Institute

**LIST OF SELECTED PUBLICATIONS
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