# Editorial

Motivated by the recent successful applications of fractional calculus in various areas of research and, in particular, by the intensive development of its interesting and fruitful probabilistic links, we intend to devote two special issues of the journal (the present and the next one) to the topic: Fractional Calculus, Fractional Differential Equations and Related Stochastic Processes.

As the matter of fact, we supposed initially to compose only one issue with the collection of papers on the topic, whose authors were specially invited by the member of our Editorial Board Professor Enzo Orsingher. However, along with the specially invited papers we received simultaneously in a short time several regular submissions perfectly suitable for this topic or closely related to it. This, of course, testifies again how attractive and important for researchers this area is. As the result, we split the relevant papers into two issues, taking into account the papers' acceptance dates.

The present issue includes nine papers concerned with several complex stochastic models and development of analytical tools for their analysis.

P. Chakraborty, X. Guo and H. Wang propose a numerical method for solving/ generating stable stochastic differential equations in a general set-up.

A. Kumar and E. Nane consider the question on infinite divisibility of distributions of inverse subordinators and establish that distributions of many of the inverse subordinators used in the literature are not infinitely divisible.

F. Cordero, I. Klein and L. Perez-Ostafe consider a family of mixed processes given as the sum of a fractional Brownian motion, with the particular Hurst index, and an independent standard Brownian motion, with a scaling factor, and show the existence of a strong asymptotic arbitrage in underlying financial markets.

The paper by V. Radchenko and N. Stefans'ka deals with a stochastic wave equation driven by a general stochastic measure. By means of the Fourier series expansion of stochastic measures the authors obtain the approximations of mild solution of the equation.

M. D'Ovidio, F. Iafrate and E. Orsingher study fractional equations governing the distribution of reflecting drifted Brownian motions. The equations are expressed in terms of tempered Riemann–Liouville type derivatives. For these operators a Marchaud-type form is obtained and a Riesz tempered fractional derivative is examined.

   In the paper by A. De Gregorio the nonlocal porous medium equation involving a space pseudo-differential operator of fractional order is considered and its link with random flights is analyzed.

   H. Budak and M. Z. Sarikaya establish, for Jensen-convex and strongly convex stochastic processes, the generalized fractional Hermite–Hadamard inequality via generalized stochastic fractional integrals.

   B. Pacchiarotti and A. Pigliacelli extend the theory of large deviations for Gaussian processes to the wider class of random processes – the conditionally Gaussian processes.

   The paper by H. Gessesse and A. Melnikov deals with the extension of classical definition of martingales to more general frameworks and studies martingale-like sequences in vector lattice and Banach lattice.

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