Modern Stochastics: Theory and Applications 11 (2) (2024) 129–131
https://doi.org/10.15559/24-VMSTA251

Editorial

Kęstutis Kubilius[a], **Kostiantyn Ralchenko**[b,*]

[a]*Vilnius University, Lithuania*
[b]*Taras Shevchenko National University of Kyiv, Ukraine*

kestutis.kubilius@mif.vu.lt (K. Kubilius), kostiantynralchenko@knu.ua (K. Ralchenko)

Received: 11 March 2024, Accepted: 11 March 2024, Published online: 15 March 2024

Welcome to the new special issue of the journal *Modern Stochastics: Theory and Applications.* This issue is dedicated to the anniversary of Yuliya Mishura, who has served as the co-editor-in-chief of the journal since its foundation.

Yuliya Mishura is a Ukrainian mathematician, Doctor of Sciences (Habilitated), Professor in the Department of Probability Theory, Statistics, and Actuarial Mathematics at Taras Shevchenko National University of Kyiv. Her contributions span various areas of research, including fractional processes, entropy functionals, financial mathematics, functional limit theorems, and statistics of stochastic processes. She has authored over 320 scientific works, including 8 textbooks and 11 monographs, notably [1–9]. Under Yuliya Mishura's supervision, 24 postgraduate students have successfully completed their Ph.D., with two of them attaining the Doctor of Sciences (Habilitated) degree.

Beyond her role as a co-editor-in-chief of our journal, Yuliya Mishura also serves as editor-in-chief for the journal *Probability Theory and Mathematical Statistics*, and associate editor for several journals, including *Stochastics: An International Journal of Probability and Stochastic Processes, Statistics and Probability Letters, Statistical Inference for Stochastic Processes, Lithuanian Journal of Statistics, Fractional Calculus and Applied Analysis*, and *Bulletin of Taras Shevchenko National University. Series: Physics and Mathematics*. Yuliya Mishura has actively participated in and led research groups in various international projects, such as Tempus, Visby, Intas, Erasmus, the "Multifractionality" project within the Marie Curie action program,

*Corresponding author.

the STORM project with the University of Oslo, and projects within the Horizon 2020 program and other scientific initiatives. She organizes and actively participates in numerous international research conferences, seminars, and schools. As an invited professor, she has delivered lecture courses at universities in the UK, Italy, Lithuania, Finland, Sweden, Germany, Poland, China, Japan, and Canada.

The special issue comprises five invited papers devoted to various aspects of stochastic processes and their statistical applications. *Victor Bohdanskyi, Vladyslav Bohun, Alexander V. Marynych, and Igor Samoilenko* investigate the arithmetic properties of multiplicative integer-valued perturbed random walks. They establish distributional limit theorems for their prime counts and for the least common multiple. *Chiara Amorino, Arturo Jaramillo, and Mark Podolskij* present a novel theoretical result on the estimation of the local time and the occupation time measure of an α-stable Lévy process with $\alpha \in (1, 2)$. Their approach involves computing the conditional expectation of the desired quantities given high frequency data, which is an L^2-optimal statistic by construction. They prove the corresponding stable central limit theorems and discuss a statistical application. *Giulia Di Nunno and Anton Yurchenko-Tytarenko* study the power law in the Sandwiched Volterra Volatility model. The paper provides an analytical proof demonstrating that this model can reproduce the power-law behavior of the at-the-money implied volatility skew, given the correct choice of the Volterra kernel. *Alexander Ivanov and Viktor Hladun* explore a time-continuous statistical model of a chirp signal observed against the background of stationary Gaussian noise. The paper establishes the asymptotic normality of the LSE for parameters of such a sinusoidal regression model. *Alexander Iksanov and Valeriya Kotelnikova* examine the Karlin infinite occupancy scheme, where balls are thrown independently into an infinite array of boxes $1, 2, \ldots$, with a probability p_k of hitting box k. Their main result is a law of the iterated logarithm for small counts as the number of balls thrown becomes large.

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