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Михайло Павлович Моклячук – до 75-річчя від дня народження

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On September 28, 2023, Mykhailo Moklyachuk, Doctor of Physical and Mathematical Sciences, Professor, Laureate of the State Prize of Ukraine in Education, and Academician of the Academy of Sciences of the Higher School of Ukraine, celebrated his 75th birthday.



Mykhailo Pavlovych Moklyachuk was born in Rozhychna village, Orativ district, Vinnytsia region. In 1972, he graduated from Taras Shevchenko

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Mykhailo Moklyachuk – to the 75th anniversary of his birth

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State University of Kyiv with a degree in probability theory and mathematical statistics. Since 1976, Mykhailo Moklyachuk has been working at Taras Shevchenko National University of Kyiv at the Department of Probability Theory and Mathematical Statistics (since 2009 – the Department of Probability Theory, Statistics and Actuarial Mathematics), where in 1977, under the supervision of Mykhailo Yadrenko, he defended his dissertation for the degree of Candidate of Physical and Mathematical Sciences on “Some problems of linear forecasting of homogeneous random fields”. In the same year, he received the Young Scientists Award of Taras Shevchenko State University of Kyiv for his scientific achievements. In 1980 he obtained International Science Exchange Program (ISEP) grant (Stanford University visiting scholar).

In 1995, Mykhailo Moklyachuk defended his doctoral dissertation on “Estimation of Functionals from Stochastic Processes and Random Fields”, his scientific advisor was Corresponding Member of the National Academy of Sciences of Ukraine Mykhailo Yadrenko. In 1999, he received the Taras Shevchenko Prize of the Taras Shevchenko National University of Kyiv for the best textbook (“Calculus of variations. Extreme problems”), and in 2012, the State Prize of Ukrai-

ne in Education.

In 2016, Professor Mokliachuk was elected an academician of the Academy of Sciences of Higher Education of Ukraine. In 2019, he was awarded the badge of the Ministry of Education and Science of Ukraine “For Scientific and Educational Achievements”.

Mykhailo Mokliachuk is the author of more than 200 scientific papers, including 12 monographs, 13 textbooks and manuals. He is the editor-in-chief of the journal “Bulletin of Taras Shevchenko National University of Kyiv. Series: Physical and Mathematical Sciences” and a member of the editorial boards of the journals “Statistics, Optimization & Information Computing”, “Stochastic Modeling and Applications”, “Scientific Bulletin of Uzhhorod University. Series of Mathematics and Informatics”. Under his supervision, 7 postgraduate students defended their dissertations for the title of Candidate of Physical and Mathematical Sciences.

Mykhailo Pavlovych is a member of international scientific societies such as the American Mathematical Society and the Institute of Mathematical Statistics (USA). He is an active participant in numerous international scientific conferences, seminars and schools.

Mykhailo Pavlovych’s scientific research is devoted to the study of stationary random processes, functionalities of stationary processes and random fields. For example, in [2] he investigates methods for estimating linear functionals of unknown values of stochastic processes. The formulas for calculating the root mean square error of the optimal estimation are presented. The least favorable spectral widths and minimum (robust) spectral characteristics are found.

Monograph [3] describes methods for estimating linear functionals of unknown values of vector-valued stationary random sequences and processes. The problems of extrapolation, interpolation and filtering are investigated. Two main approaches to solving estimation problems are developed. The first one, the case of spectral certainty, is based on the assumption that the spectral density matrices of stochastic sequences and processes are known exactly. The second approach, the case of spectral uncertainty, is based on the assumption that the spectral density matrices of processes are not known exactly, but classes of permissible values of spectral densi-

ties are given. These classes of densities describe different models of vector-valued stationary stochastic processes.

Methods for estimating linear functionals from unknown values of random fields are described in [4]. The formulas for calculating the spectral characteristic and the root mean square error of the optimal estimate are given. The least favorable spectral widths and minimum (robust) spectral characteristics are found.

The monograph [5] investigates methods for estimating linear functionals from unknown values of stochastic processes. The formulas for calculating the root mean square error of the optimal estimate are given. The least favorable spectral densities and minimum (robust) spectral characteristics are found.

The monograph [8] investigates the problems of optimal estimation by the mean-squared criterion of linear functions that depend on unknown values of periodically correlated isotropic random fields. The estimates are based on observations of fields with noise. The formulas for calculating the mean square errors and spectral characteristics of the optimal linear functionals are obtained under conditions of spectral certainty, where the spectral densities of the fields are known exactly.

A thorough study of spectral theory and estimation methods for random processes with stationary increments is provided in [10]. In particular, the estimation of unknown value functions for random processes with stationary increments, including ARIMA processes, seasonal time series, and the class of cointegrated sequences, is investigated. A solution is proposed for the problems of extrapolation (forecasting), interpolation (estimation of missing values) and filtering (smoothing) based on observations with and without noise in discrete and continuous time domains.

The monograph [11] investigates the problems of optimal estimation by the mean-squared criterion of linear functions constructed on the basis of unknown values of stationary random processes. The estimates are based on observations of processes with an additional stationary noise process. The aim of the study is to develop methods for finding optimal estimates of the functional in the case when some observations are missing.

The monograph [12] investigates random processes involving random variables associated

with the concepts of uncertainty or randomness. The study of such processes is currently of particular interest in mathematics and applied sciences. The growing interest of researchers in this area is caused by various applications in such fields as mechanics, acoustics, economics, medicine, biology, and others. The purpose of this book is to combine the needs of practitioners and si-

multaneously present new theoretical results.

The staff of Mechanics and Mathematics faculty sincerely congratulates Mykhailo Moklyachuk on this significant date and wishes him good health, family happiness, creative inspiration and new achievements in his scientific research.

Monographs co-authored by M. Moklyachuk

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