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МАТЕМАТИЧНА
СТАТИСТИКА

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*The American Mathematical Society scheme for transliteration of Cyrillic may be found at the end of index issues of *Mathematical Reviews*.



Anatoliï Volodymyrovych Skorokhod
(10 September 1930 – 3 January 2011)

ANATOLIĬ VOLODYMYROVYCH SKOROKHOD

Anatoliĭ Volodymyrovych Skorokhod was born in Nikopol, Dnepropetrovsk region, on September 10, 1930 to a family of school teachers. In 1948, A. V. Skorokhod graduated from a secondary school and in the same year he entered the Mechanics and Mathematics Department of Kiev Taras Shevchenko University.

While an undergraduate, Skorokhod was engaged in scientific research in the field of probability theory under the supervision of Boris Vladimirovich Gnedenko, Academician of the Academy of Sciences of Ukraine, and Iosif Il'ich Gikhman, Associate Professor at that time (later a corresponding member of the Academy of Sciences of Ukraine, who soon became his colleague and close friend). Skorokhod simultaneously and successfully worked on several complicated problems. When he graduated from Kiev University, Skorokhod was an author of five scientific publications in the leading Soviet mathematical journals, “Uspekhi matematicheskikh nauk” and “Doklady AN SSSR”¹ (two other papers of his were published in a collection of student papers by Kiev University). It is worth mentioning that two of his early papers were translated into the English language and published by the American Mathematical Society in “Selected Translations on Mathematical Statistics and Probability”. Skorokhod graduated from Kiev University in 1953 and went to Moscow State Lomonosov University to undertake research advised by Professor Evgeniĭ Borisovich Dynkin during 1953–1956.

In 1957, Skorokhod returned to Kiev and began his work as a lecturer at Kiev University. In 1964, he became the head of the Department of the Theory of Random Processes at the Institute of Mathematics of the Academy of Sciences of Ukraine. He also continued as a lecturer at Kiev University. Having a part-time job position at the Department of Probability Theory at Kiev University, Skorokhod, in fact, had a full teaching load of a professor of the Department. In particular, he headed the scientific seminar, supervised numerous PhD students, and gave many courses of lectures. “Processes with Independent Increments”, “Markov Processes”, “Stochastic Differential Equations”, “Random Operators”, “Measure in Hilbert Spaces” — this is not a complete list of courses he taught for the students of the Department of Probability Theory. During almost 40 years he taught the basic course “Theory of Stochastic Processes”. Based on his teaching experience, Skorokhod published in 1980 the textbook “Lectures on the Theory of Stochastic Processes” in Ukrainian. This concise text contained the main results for basic classes of stochastic processes and introduced the reader to the current state of the topic at the time. In 1996, this textbook was published in English (VSP/Utrecht and TViMS/Kiev).

The contribution of Skorokhod to the development of the theory of probability at Kiev University can hardly be overestimated. The creative personality of Anatoliĭ Volodymyrovych, his discussions with friends, colleagues, and students inspired them to continue

¹The English versions of the journals are known under the names “Russian Mathematical Surveys” and “Soviet Mathematics Doklady”, respectively.

their scientific research. Every speaker at Skorokhod's seminar was enriched with new ideas for further work even if the talk itself was severely criticized.

From the very beginning of his work at Kiev University, Skorokhod distinguished himself by a unique manner of delivering lectures; proving numerous statements impromptu, he made his students participate in the creative process. His discussions with speakers and ability to understand the core of a problem, generalize it, find possible weak points in the proof, and reveal hidden relation of the problem considered to other problems turned the seminar sessions into a real creative laboratory, and all dedicated scholars tried to deliver a talk at the seminar in the presence of Skorokhod. Thus, the Kiev school of probability theory was largely formed as a result of the creative activity of Skorokhod. He supervised the Candidate of Science Theses of more than 50 young scientists, among which 17 became Doctors of Science.

Skorokhod authored more than 300 papers published in leading periodicals and 23 monographs (45 if one counts translations of his books into other languages). The first Skorokhod monograph, "Studies in the Theory of Random Processes", was published in 1961 by Kiev University (the English edition of this book appeared in 1965). His second monograph, "Random Processes with Independent Increments", was published by the Moscow publisher Nauka in 1964.² Another monograph, "Introduction to the Theory of Random Processes", coauthored with I. I. Gikhman, was published by the same publisher in 1965. The Polish edition of this book appeared in 1968; the translation into English was published in the USA in 1969.

Skorokhod's scientific career was very successful in Ukraine. For his results, Skorokhod received numerous titles and degrees: Doctor of Science, Professor (1963), Corresponding Member of the Ukrainian Academy of Sciences (1967), Academician of the Ukrainian Academy of Sciences (1985), and Member of the American Academy of Art and Science (2000). In 1982 and 2003, he was awarded the Ukrainian State Prize in Science and Technology.

A number of scientific notions are related to the name of Skorokhod; their definitions can be found in Wikipedia, for example. Among those notions and terms are the *Skorokhod space*, *Skorokhod topology*, *Skorokhod integral*. The problem of embedding a random walk in the trajectories of a Wiener process and its generalizations is called the *Skorokhod embedding problem* or *Skorokhod representation problem*. His investigations of the problem of reflection of a stochastic process from a boundary of a given region is known as the *Skorokhod reflection problem*. The terms *Skorokhod theorem*, *Skorokhod stochastic differential equation*, etc. are also well known in the literature. Each of the problems mentioned above is the main field of research and generalizations for many probabilists in several countries.

Since 1993, Skorokhod has worked at Michigan State University (Lansing, Michigan, USA), retaining close scientific relations with the Institute of Mathematics of the Academy of Sciences of Ukraine. His works of recent years are devoted to the investigation of the asymptotic behavior of dynamical systems under random perturbations. His results on this subject form the basis of the monograph "Random Perturbation Methods with Applications in Science and Engineering", coauthored with H. Salehi and F. Hoppensteadt (published by Springer in 2002).

V. S. Korolyuk, V. V. Buldygin, O. K. Zakusylo, M. F. Gorodniĭ, M. V. Kartashov,
O. I. Klesov, Yu. V. Kozachenko, G. L. Kulinich, Yu. S. Mishura,
M. P. Moklyachuk, V. M. Radchenko

²Also translated into English two years later.



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