

ANATOLY YAKOVLEVICH DOROGOVTSSEV
(SEPTEMBER 7, 1935–APRIL 22, 2004)



On April 22, 2004, the famous Ukrainian mathematician and educator, professor Anatoly Yakovlevich Dorogovtsev, passed away.

Anatoly Yakovlevich was born on September 7, 1935, in the town of Khartsyzsk in Stalin region (now, Donetsk region). His father perished in 1943 in the Second World War, and the family had to survive in sad straits.

The future scientist had already shown his abilities in mathematics in his earlier years at school. Anatoly Yakovlevich entered the Mechanics and Mathematics Department at Kiev State Taras Shevchenko University in 1953. There he attended lectures by G. E. Shilov, L. A. Kaluzhnin, I. I. Gikhman and other outstanding scientists. He graduated from the university in 1958. Dorogovtsev obtained the degree of Candidate of Sciences (equivalent of Ph. D.) for the thesis “Statistical problems for a class of nonstationary stochastic processes” [7] supervised by I. I. Gikhman in 1962. He obtained the degree of Doctor of Sciences for the thesis “Studies in the theory of estimation of parameters of random processes” [52] in 1978. He chaired the Department of Mathematical Analysis at Kiev National Taras Shevchenko University in 1983–1998.

Among Ukrainian scientists, Dorogovtsev was an outstanding personality. His first paper [1] dealing with statistical analysis of an important class of difference stochastic

differential equations was already noticed by experts and translated into English. The range of knowledge of Anatoly Yakovlevich was encyclopaedic, enabling him to work in different fields of probability theory and the theory of stochastic processes. His most important results, however, were obtained in the theory of stochastic differential equations and in the statistics of stochastic processes.

His first cycle of papers which served as a basis for the Ph.D. thesis dealt with investigation of a very important class of nonstationary stochastic processes driven by stochastic differential equations with varying coefficients. For these equations, he introduced for the first time the notion of solution in the generalized sense and studied the problem of construction of the best linear forecast for stochastic processes generated by these equations. At the same time, Dorogovtsev published a joint paper with I. I. Gikhman [10] studying stability of solutions of stochastic differential equations. His further scientific interests were focused for a long time on problems in regression analysis and experimental design. His studies combined deep theoretic results with wide practical applications. Scientific interests of Anatoly Yakovlevich related to regression analysis and experimental design were transformed with time into a very important period of his creative work related to the theory of nonlinear and nonparametric regression analysis. By developing ideas of Le Cam, Pfanzagl, and others, he became one of the founders of this theory and created general methods for studying asymptotic properties of statistical estimates. In his works, many models of nonlinear and nonparametric regression analysis were considered, where he constructed optimal, according to the most well-known criteria, estimates and studied consistency, asymptotic effectiveness, weak convergence of estimates, etc. These studies were at the core of his D.Sc. thesis and then were published in the monograph [61]. This monograph was awarded the prize of the Ministry of Higher Education of Ukraine in 1983. From our point of view, this is one of the best monographs on the theory of statistical estimation, full of original fundamental results.

The monograph [89] was of great interest among experts. It contained research related to the behavior of solutions of difference equations and those of continuous stochastic equations in a Banach space. Special attention is given to obtaining conditions of existence of periodic and stationary modes for these systems and to the problem of stability of solutions of linear and nonlinear equations. The monograph gives a complete and well-written general theory of these systems, as well as new and original results of the author which further became classic. Anatoly Yakovlevich also continued his research work in this field in the last years of his life, involving his students in it. On the whole, the scientific heritage of Dorogovtsev consists of more than 160 publications.

We remember Anatoly Yakovlevich to be an active, strong-willed person of principle. He applied high standards not only to himself, but to people around him, in particular, to his students. His excellent lectures served to bring up many generations of mathematicians. He wrote well-known textbooks on mathematical analysis [91], [125], measure theory [83], and a problem book on mathematical analysis [70]. Dorogovtsev is one of the authors of the well-known problem book on probability theory [55], translated into English by the AMS in 1999. He founded the collection of scientific and methodological papers called "Mathematics Today" [62] and dreamt of transforming it into a recreational mathematical journal like the "American Mathematical Monthly". For many years, he headed the judges of the mathematical olympiad at Kiev National University and was responsible for a students' study group in mathematical analysis. This group produced a number of scientists working now in Ukraine and beyond. Communication with Professor Dorogovtsev stimulated students for developing their creative thinking and made them try to solve modern mathematical problems. Among his students, we can mention D. Sc.'s P. S. Knopov, A. V. Ivanov, A. G. Kukush; C. Sc.'s L. Kovaleva, Yu. V. Kartashev,

N. A. Germanov (Bulgaria), Le Vin' Tkhuan (Vietnam), Oneida Ortega (Nicaragua), Naïm Zerek and Karim Farah (both from Syria), V. I. Kolchinskii, N. A. Denis'evskii, A. Zaigraev, M. F. Gorodnii, Yu. V. Tomilov. Dorogovtsev was one of the founders and a permanent author of the divulgatory yearly "In the World of Mathematics" published in 1969–1990. Already as a student, he took an active part in organizing mathematical olympiads in Kiev and study groups at the university for schoolchildren. He wrote excellent books for schoolchildren: "Integral and its applications", "Selected problems and theorems in mathematical analysis", and "Series". He was one of the authors of the book "Selected topics in elementary mathematics", which had three editions and played an important role in modernization of school teaching of problems related to functional dependence. On the whole, Professor Dorogovtsev published about 60 methodological works.

The hearts of numerous colleagues and students of Anatoly Yakovlevich Dorogovtsev will keep the memory of him, a gifted scientist, teacher and an extraordinary personality.

LIST OF MAIN PUBLICATIONS OF A. YA. DOROGOVTSSEV

1. A. Ya. Dorogovtsev, *Statistical analysis of a difference stochastic equation*, Dopovidi Akad. Nauk Ukraïn. RSR **2** (1959), 120–124; English transl. in Selected Transl. Math. Statist. and Prob., vol. 3, Amer. Math. Soc., Providence, R.I., 1962, pp. 315–319. MR0154364 (27:4313)
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