Friend's memory

Mikhail Yastrebenetsky, President of Gnedenko Forum
Boyan Dimitrov, Vise President of Gnedenko Forum
Vladimir Rykov, Editor-in-Chief of RT&A journal
Alexander Bochkov, Gnedenko Forum Co-Founder

Dear Colleagues!

The past year and the beginning of the new year brought a number of sad events, which we would like to inform you about with great regret and pain. Bright scientists in the field of reliability theory, bright representatives of the best schools of the Soviet Union and Russia have passed away. They were wonderful, responsive people, with whom we and many of you were connected not only by professional relations, but also by sincere friendship. The more severe these losses are for our entire community - the Gnedenko Forum. Largely thanks to them, our Forum has gained fame and popularity in the world. All of them were active participants and members of the Editorial Board of our journal. The bright memory of these people will always remain in our hearts. We encourage you to honor their memory by publishing memoirs about them and articles using the ideas of these scientists in the upcoming issues of the journal "Reliability: Theory and Applications". We express our sincere condolences to family, relatives, friends and colleagues, to all who knew these outstanding persons.

Vladimir Korolyuk

Academician, Academy of Sciences of the Ukrainian Soviet Socialist Republic (from 1976, corresponding member from 1967). Basic research trends are calculus of probabilities and mathematical statistics, numerical mathematics and computer programming. He developed the method of time-series deflation of deficiencies relying on boundary layer effect, which appears at the change from integral, integrodifferential and finite-difference equations with small parameter to parabolic or elliptical differential equations. He suggested and developed a new approach to studying functional of Markovian and semi-Markovian processes based on inverse of linear operators perturbed on spectrum. Editor-in-Chief of the journal Probability Theory and Mathematical Statistics, Academician of the National Academy of Sciences of Ukraine Professor Volodymyr Korolyuk passed away 4th April 2020. The outstanding mathematician of worldwide recognition, Volodymyr Korolyuk was one of the founders of the Kyiv school of probability theory, mathematical statistics and cybernetics. The scientific research of Volodymyr Semenovych Korolyuk covered various areas of probability, mathematical statistics, theory of stochastic processes and cybernetics. V.S.Korolyuk was one of the first scientists in Ukraine, who assessed the theoretical and practical importance of semi-Markov processes and attracted the attention of his students for their research and application. The results of these studies launched a new direction – the theory of asymptotic phase merging and averaging of random processes. V.S.Korolyuk also launched another new direction – asymptotic analysis of random evolutions.

The mathematical heritage of V.S.Korolyuk includes 22 monographs and about 20 textbooks, most of which are reprinted in foreign languages; more than 280 scientific research papers. Under his supervision, 43 students defended their PhD dissertations, 14 – Doctoral dissertations. V.S.Korolyuk combined fruitful scientific work, teaching and scientific-organizational activities. During a long period of time he lectured the theory of programming, probability theory and mathematical statistics at the Taras Shevchenko National University of Kyiv at Faculty of

Mechanics and Mathematics. Within a group of famous experts, he was awarded the USSR State Prize (1978) for the creation of "Encyclopedia of Cybernetics". In addition, V.S.Korolyuk was awarded the Glushkov Prize (1988) and Bogolyubov Prize (1995). In 1998 he was awarded the honorary title "Honored Figure of Science and Technics of Ukraine." In 2002 V.S.Korolyuk was awarded the Prize of the National Academy of Sciences of Ukraine and Medal by the name of M.V. Ostorgradsky, and in 2003 – the State Prize of Ukraine in Science and Technology.

Volodymyr Korolyuk shared his inspiration by mathematical science and his passion to solving mathematical problems in probability and statistics with colleagues and numerous students and followers, his scientific influence has widely spread also to many specialists in applied areas who use probability and statistics methods for their research. Volodymyr Korolyuk will be always remembered as talented scientists and pedagogue, his ideas and scientific heritage has had a great impact on contemporary mathematical science, his disciples and followers will continue and develop the researches started by him.

Eliahu Gertsbakh

Doctor of Sci., Professor Emeritus

He was born in Riga (Latvia) in 1934. He wrote: "June 27, 1941, the sixth day of the war, looked like an ordinary day to me. .. My father was in the office as usual, and my mother was doing something around the house... Nothing boded ill... Around noon, the phone rang – my father from the newsroom: Troops are retreating along Brivibas. I'll be home soon. We have to leave, and we don't have much time. Of Brivibas street - the main street of Riga." The way from Riga was like a horror movie. It concludes: "So passed the day of June 27, 41. The worst day of my life. On the following day, June 28, the leading detachments of German troops were already in the suburbs of Riga. My father's brother, uncle Semyon and his family, lived in Riga. ... but on that day, uncle Semyon's wife was ill, and they did not go anywhere. They died in the Riga ghetto, uncle Semyon, his wife, and my cousins, Ruthie and Neri."

"We returned to Riga on January 3, 1945. I graduated from school in 1950 and studied mechanical engineering at the Latvian state University in 1950-1955. In 1955-1961, he worked at the WEF (state electrotechnical plant) and simultaneously studied mathematics at the same University. 1961-1964 I was a doctoral student of Chaim Borisovich Kordonsky).

During this period, Ilya Gersbach successfully worked in the field of mathematical reliability theory. An article on the choice of the optimal mode of maintenance of the groove of an identical element in automatic installations appeared in the prestigious magazine "automation and remote control", 1964, no. 3. best-Selling models of failures of I. B. Hertbach And H. B. Kordonsky, Moscow, radio, in Russian, appears in 1966. He is defending his dissertations. One of the opponents of the thesis was B. V. Gnedenko.

He wrote in 01.2017: "working at the Central research Institute of civil aviation in 1965-72 was probably the most interesting period of my professional life. It is sad that Haim Borisovich, Misha Maxim and Valery Venevtsev, the real authors and creators of the Aeroflot schedule, are no longer with us." "The computing center at the Institute of civil aviation was probably founded in 1964. He had a group that started working on computer applications at Aeroflot. The work of this group did not produce visible results, as we found out later, and was centered around hopeless attempts to apply integer programming to plotting. The administration of the Institute decided to organize a new Department in the Computer center under the leadership of Chaim Borisovich. I started working there in September 1965. we appointed a small group of people, which included Vald Lini, Valery Venevtsev, Misha Maxim and I, and we were given the task of creating the Central schedule of Aeroflot using computers."

In 1974, he was repatriated to Israel.

Ilya B. Gertsbakh received his M.Sc. in Mechanical Engineering (1955) and Mathematics

(1961) from the Latvian State University (Riga) and his Ph.D. degree in Applied Probability and Statistics from the Latvian Academy of Sciences (1964). He is Professor in the Department of Mathematics and Computer Science at Ben Gurion University of the Negev in Beersheva, Israel, where he has taught since 1975. He has published about 60 papers and three books.

Mikhail Nikulin

Ph. Doctor, Professor

UFR "Sciences and Modelling"; University Victor Segalen Bordeaux 2; 146 Rue de Leo Saignat, 33076, Bordeaux, France. The Laboratory of Statistical Methods of the Steklov Mathematical Institute at St. Petersburg, Russia. Mikhail Nikulin earned his Ph.D in the Theory of Probability and Mathematical Statistics (1973) from The Steklov Mathematical Institute in Moscow. Member of the St. Petersburg's Mathematical Society, the elected member of the International Statistics Institute, a board member of the book series "Statistics for Industry and technology", Birkhauser. From the memoirs of B. Yu. Lemeshko (Novosibirsk state technical University): In 1973, Mikhail Nikulin published 2 articles in the journal "probability Theory and its application" (1. Nikulin M. S. Chi-square Criterion for continuous distributions with shift and scale parameters // Probability theory and its application. 1973. T. XVIII. No. 3. – P. 583-591 and 2. Nikulin, M. S. On the criteria for Chi-square test for continuous distributions // Probability theory and its application. 1973. Vol. XVIII. no. 3. - P. 675-676), devoted to the Chi-square type criterion, which provided for the use of maximum likelihood estimates for the original ungrouped sample. It was shown that the asymptotic distribution of the statistics of the proposed criterion is a Chi-square distribution with the number of degrees of freedom k-1, where k is the number of intervals used. Even earlier, he reported on these results at the international conference on probability theory and mathematical statistics, held from 25 to 30 June 1973 in Vilnius. The work [1] was published in English the following year (Nikulin M. S. Chi-Square Test for Continuous Distributions with Shift and Scale Parameters // Theory Probab. Appl., 18(3), 559–568. DOI: 10.1137/1118069). In 1974 an article by Rao K. C. & Robson D. S (Rao K. C., Robson D. S. a chi-square statistical for goodness-of-fit tests within the exponential family // Communications in Statistics, 3:12, 1139-1153. DOI:10.1080/03610927408827216). Since then, international publications have referred to this criterion as the RAO-Robson criterion, and only a quarter of a century later I saw a reference to it as the RAO-Robson-Nikulin criterion.

While conducting numerical studies of the properties of hypothesis testing criteria, we naturally did not ignore the criteria proposed by Mikhail Nikulin. On the one hand, everything confirmed the good properties of the criteria, on the other – the lack of publications mentioning the use of criteria in applications was surprising. Later, it was realized that applications usually use the simplest methods that require minimal training or rely on existing software.

My acquaintance with Mikhail Nikulin took place much later. He wrote to me sometime in late 2006. A correspondence ensued. Mikhail's interest in our team was largely due to our focus on using computer technologies in research, which allows us not only to study the properties of methods, but also to apply them to solving problems in applications. In 2007, at his invitation, I visited him in Bordeaux. Mikhail's main interests at this time lay in the field of mathematical methods used in accelerated tests in problems of survival and reliability. Under his influence, we also started working in this direction. In 2008, the second International Conference on Accelerated Life Testing in Reliability and Quality Control, organized by Nikulin in Bordeaux, was attended by 3 people, and the next one in 2010, held in Clermont-Ferrand, was attended by 5 people. in 2009, Mikhail helped expand the number of international participants and our participation in the "VI International Conference Mathematical Methods in Reliability" in Moscow and in the "6th St. Petersburg Workshop on Simulation" in St. Petersburg.

From 2010 to 2013, with the participation of Mikhail Nikulin, we carried out 2 projects aimed

at developing methods of statistical analysis and simulation in the study of reliability, quality control and survival. Since that time, the International Workshop "Applied Methods of Statistical Analysis" has been counting down, and Mikhail Nikulin has made a great contribution to its organization. The seminar is held regularly with a period of 2 years. In 2019, the next 5th seminar was held in Novosibirsk (http://www.amsa.conf.nstu.ru/amsa2019/).

Mikhail Nikulin was a person who was very interested in making sure that statisticians were engaged in tasks that were useful for applications, and that they were engaged in topical issues. There was such a Patriotic streak in it: the desire for Russian specialists in the field of probability theory and mathematical statistics to deal with key issues that can provide real benefits for specific areas of human activity. In his memoirs, he treated his scientific supervisor L. N. Bolshev with great warmth, especially noting how sensitive He was to questions of application. Despite all the assertiveness in defending the most promising research areas, M. S. Nikulin was understanding of the opinion of colleagues and was able to assess the importance of results in various sections of mathematical statistics. Well-known colleagues who have often contacted him, also note his kindness, and I would also add selflessness and readiness to always help.

Igor Kovalenko

Doctor of Sci., Professor

Graduated from T. Shevchenko Kyiv State University (1957). Diploma in Mathematics. Postgraduate studies at the Institute of Mathematics, Ukrainian Academy of Sciences (1957-1960) under supervision of B.V. Gnedenko, with consults of A.N. Kolmogorov. The Ukrainian and world science is mourning the loss of a brilliant scientist Professor Igor Mykolayovych Kovalenko, who died on October 19, 2019, after a difficult fight with a heart disease. Prof. Igor Kovalenko was a prominent Ukrainian mathematician in the field of probability theory and its practical applications, a disciple and associate of Boris Gnedenko and Vladimir Korolyuk. He became famous worldwide for his book “Introduction to Queuing Theory”, written together with Gnedenko. He has grounded a scientific school in the theory of reliability, queueing theory and cryptography, well known in Ukraine and all over the world.

Igor Kovalenko was born on March 16, 1935 in Kyiv, Ukraine. After graduating from the Faculty of Mechanics and Mathematics of Kyiv Taras Shevchenko University, he worked at the Computing Centre of the Academy of Sciences of Ukraine. From 1962 till 1971, Kovalenko worked in Moscow, where he headed a laboratory at Moscow Institute of Electronic Engineering, and together with other Gnedenko’s disciples, was the head of the seminar on queueing theory at Moscow State University. Many leading scientists of the former Soviet Union and foreign countries attended this seminar. Based on the model of piecewise linear Markov processes developed by him, Kovalenko built a mathematical model of a complex defence system reliability and developed numerical algorithms for its implementation grounded on the method of a small parameter.

In 1964, Igor Kovalenko became a Doctor of technical sciences. He formulated the principle of monotonous failures, which, while maintaining high accuracy, significantly simplified the calculations of system reliability. In 1970, Kovalenko was awarded the degree of Doctor of Physics and Mathematics for another thesis on the probabilistic theory of systems of random Boolean equations. Being a doctor twice is a very rare practice in the scientific world.

After returning to Kiev in 1971, Prof. Kovalenko founded and headed the Department of Mathematical Methods of the Theory of Complex Systems Reliability at V.M. Glushkov Institute of Cybernetics. Two areas of research formed the mainstream of investigations: approximate combined analytical and statistical methods of reliability analysis, and theoretical and applied cryptography, systems and methods for data protection. Under his guideline, it was developed the first national standard in the field of cryptographic information security in Ukraine.

Prof. Kovalenko is the author of 25 monographs and more than 200 articles. He was elected

as the Academician of the National Academy of Sciences of Ukraine in 1978 (Corresponding Member since 1972). He was an extremely hard-working, honest and sincere person, a competent manager and, thanks to his human qualities, professional experience and knowledge, highly respected among his colleagues. Prof. Igor Kovalenko left many disciples, among them there are many professors and associate professors. All of them preserve in their memory the unforgettable days of joining the science and independent creativity under the guidance of a Great Scientist and Teacher, hours of direct communication with a person of great erudition and high culture.