



Drozd Yuriy (for his 80th birthday)

On October 15, 2024, Yuriy Drozd, a distinguished Ukrainian mathematician, celebrated his 80th birthday. A Doctor of Physical and Mathematical Sciences, Professor, and Corresponding Member of the National Academy of Sciences of Ukraine, he is globally acclaimed for his remarkable contributions to algebra, representation theory, and algebraic geometry.

His life journey is a vivid example of dedication to science and education. From his early successes in school competitions to groundbreaking mathematical discoveries recognized worldwide, Yuriy Drozd's career stands as a testament to his unwavering commitment to science's ideals.

On this milestone occasion, we fondly reflect on the most significant achievements of his scientific and pedagogical career, expressing our deep gratitude for his invaluable contributions to the advancement of Ukrainian and global mathematics.

Yuriy Drozd was born on October 15, 1944, in Kyiv to a family of a civil engineer and a physician. Growing up in the difficult post-war years, he was surrounded by a creative family environment, stimulating discussions on scientific topics, and a deep love for reading, all of which nurtured his emerging talent. While attending Kyiv School No. 48, he excelled in mathematics, winning the Kyiv City Mathematics Olympiad three times and securing first place in the inaugural All-Union Mathematics Olympiad for schoolchildren in 1961.

After completing school, Yuriy Drozd enrolled in the Mechanics and Mathematics Faculty at Taras Shevchenko Kyiv State University. By his third year, he had already achieved his first scientific results in homological algebra, which formed the foundation of his coursework. His thesis focused on cubic rings, where he established a criterion for the finiteness of indecomposable integral representations – a significant contribution to mathematical science. In 1966, Yuriy Drozd graduated with honors. He continued his studies as a postgraduate at the Institute of Mathematics of the Academy of Sciences of the Ukrainian SSR, under the guidance of I. Shafarevich. Throughout his postgraduate studies, he was deeply involved in modern



algebraic geometry and ring theory. In 1969, Yuriy Drozd defended his Ph.D. dissertation "On Some Problems in the Theory of Integral Representations".

In the early stages of his scientific career, Yuriy Drozd also explored the structure of hereditary and Bass orders. His collaborative work with A. Roiter and V. Kirichenko laid the foundation for the theory of integral representations and orders, offering new tools for analyzing modules over rings.

In the 1970s, Yuriy Drozd became one of the pioneers in studying matrix problems in representation theory. Using innovative techniques in matrix problem solving, he along with V. Bondarenko established a criterion for the tameness of modular representations of finite groups. However, his most significant scientific achievement during this period was proving the "tame-wild" dichotomy conjecture. This result became the cornerstone of his doctoral dissertation titled "Matrix Methods in Representation Theory and Ring Theory", which he successfully defended in 1981. A hallmark of Yuriy Drozd's research has been his simultaneous exploration of problems across various fields of mathematics, and the 1970s were no exception.

During these years, he achieved many important results in the theory of rings and modules, many of which were included in the monograph "Finite-Dimensional Algebras". Coauthored with V. Kirichenko, the monograph quickly gained popularity among mathematicians and was translated into English, Spanish, and Chinese. The 1980s in Yuriy Drozd's scientific career were marked by his work in the representation theory of groups and Lie algebras and matrix problem theory. In particular, his research on the concept of Harish-Chandra subalgebras, conducted jointly with S. Ovsienko and V. Futorny, stands out as a significant contribution.

In the 1990s, Yuriy Drozd, jointly with G.-M. Greuel, made significant advances in the theory of Cohen-Macaulay modules over local rings. Also, in collaboration with H.-J. Baues, he achieved important results in the stable homotopy classification of polyhedra. Shortly thereafter, Yu. Drozd developed a new, more effective methodology for research in this area. In recent years, Yuriy Drozd's scientific endeavors have focused on a modern mathematical theory: the theory of derived categories. This cutting-edge tool is instrumental in studying the structures of algebras and rings. Together with colleagues, particularly I. Burban, he has developed new approaches to exploring derived categories for finite-dimensional algebras and noncommutative Cohen-Macaulay rings. His work provides a detailed description of the structure of derived categories for large classes of noncommutative objects and represents a significant contribution to this contemporary field of mathematics.

A significant part of Yuriy Drozd's life has been devoted to teaching and mentoring new generations of Ukrainian mathematicians. His pedagogical career began in 1969 when he started as a lecturer in the Department of Algebra and Mathematical Logic at Taras Shevchenko Kyiv State University. Over the years, he advanced from lecturer to professor and eventually became the head of the department.

In 2006, Yuriy Drozd became the head of the Algebra Department, and since 2014, he has led the Department of Algebra and Topology at the Institute of Mathematics of the National Academy of Sciences of Ukraine. Despite his administrative responsibilities, he continues to lecture at Taras Shevchenko National University of Kyiv.

Yuriy Drozd has delivered lectures at universities in Germany, the United States, France, Sweden, and other countries. His international teaching activities included courses on algebra, representation theory, and homological algebra. He serves on the editorial boards of several journals, including "Ukrainian Mathematical Journal", "Proceedings of the Institute

of Mathematics of the NAS of Ukraine”, “Carpathian Mathematical Publications”, “Algebra and Discrete Mathematics”, “Algebras and Representation Theory”, and “European Journal of Mathematics”.

As a result of his scientific and teaching endeavors, Yu. Drozd has established a robust scientific school that has become a prominent center for research in algebra and representation theory. Throughout his career, he has supervised 33 Ph.D. students and 5 Doctor of Science graduates. Many of his students have become renowned scientists, professors, and lecturers at leading universities worldwide, including those in Germany, Sweden, the United Kingdom, and other countries.

Yuriy Drozd is the author of several university textbooks that have become indispensable resources for students: “Galois Theory” (1997), “Theory of Algebraic Numbers” (1997), “Introduction to Algebraic Geometry” (2004), “Fundamentals of Mathematical Logic” (2005), and others. His textbooks are renowned for their clarity, depth of theoretical material, and emphasis on modern mathematical methods. They serve as valuable resources for students both in Ukraine and abroad.

Yuriy Drozd’s teaching exemplifies how knowledge, passed from teacher to student, becomes the foundation for the continued advancement of science. His students carry forward the achievements of the Ukrainian mathematical school, enriching the global scientific community.

For his outstanding achievements in science, teaching, and international collaboration, Yuriy Drozd has received numerous awards. His contributions to mathematics have been highly recognized both in Ukraine and abroad. Notably, in 2007, for his series of scientific works titled “Representations of Algebraic Structures and Matrix Problems in Linear and Hilbert Spaces”, Yu. Drozd was awarded the State Prize of Ukraine in Science and Technology. In 2015, he received the Bogolyubov Prize from the NAS of Ukraine for a series of works in representation theory and its applications. In 2019, he was honored with the Lavrentiev Prize of the NAS of Ukraine for developing new methods in the theory of dynamical systems, group actions, and representation theory. In 2012, Yu. Drozd was elected a Corresponding Member of the National Academy of Sciences of Ukraine, and in 2017, he became the President of the Ukrainian Mathematical Society.

On the occasion of your 80th birthday, please accept our heartfelt congratulations and sincere gratitude for your invaluable contributions to science, education, and the development of mathematics. You are a shining example of how profound knowledge, tireless work, and exceptional talent can transform the world of mathematics. Your scientific achievements are a source of pride for Ukraine and the international scientific community.

We wish you robust health, continued success, creative inspiration, and the warmth of family. May your work continue to inspire new generations of mathematicians, and may your example of dedication to science remain a guiding light for students and colleagues alike.

With deep respect and best wishes,

Andriy Zagorodnyuk, Orest Artemovych, Oleh Lopushansky, Serhii Sharyn, Dmytro Bodnar, Volodymyr Derkach, Roman Dmytryshyn, Petro Filevych, Volodymyr Gavrylkiiv, Taras Goy, Rostislav Grigorchuk, Rostyslav Hryniv, Serge Ivashkovych, Mykola Kachanovsky, Taras Mel’nyk, Oleh Nykyforchyn, Mykhailo Osypchuk, Anatolii Petravchuk, Anatolij Plichko, Volodymyr Pylypiv, Yurii Samoilenko, Oleh Skaskiv, Andrii Solomko, Mykhailo Zarichnyi, Roman Zatorsky.