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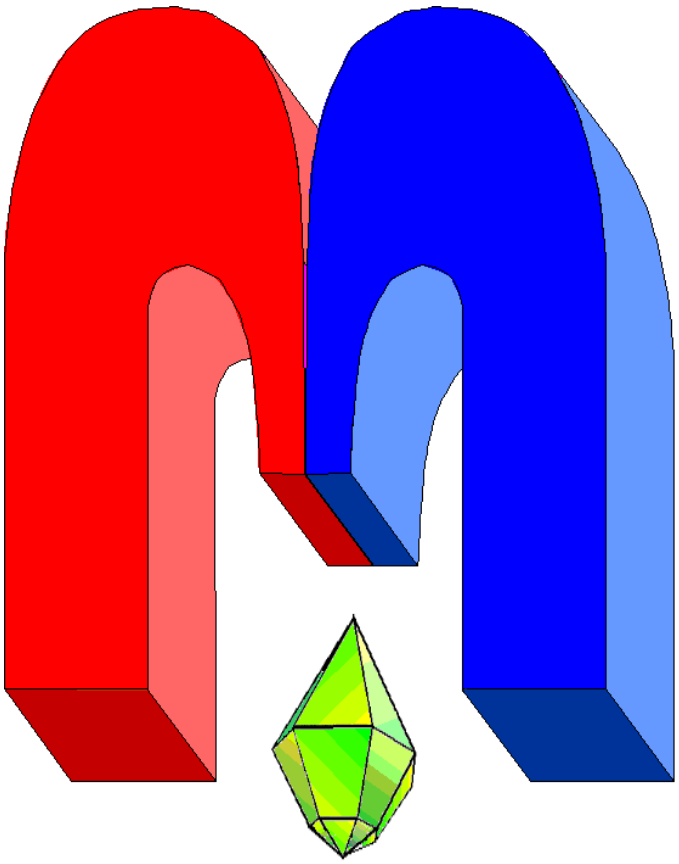

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† In Kazan University the Electron Paramagnetic Resonance (EPR) was discovered by Zavoisky E.K. in 1944.

In memory of Professor Boris I. Kochelaev (04/19/1934 – 09/29/2025)

On September 29, 2025, Boris Ivanovich Kochelaev, an outstanding theoretical physicist, professor-consultant of the Department of Theoretical Physics at Kazan University, and Doctor of Physical and Mathematical Sciences, passed away at the age of 91. He was a prominent representative of the Kazan School of Physics, founded by Corresponding Member of the USSR Academy of Sciences, Professor S.A. Altshuler.

Boris I. Kochelaev was born on April 19, 1934, in the industrial settlement of DirizhablStroy (now the city of Dolgoprudny, Moscow Region). In 1952, after graduating with a silver medal from secondary school in Vyatskie Polyany (Kirov Region), he entered the Faculty of Physics and Mathematics at Kazan State University (KSU). In 1960, under the supervision of Professor S.A. Altshuler, he defended his PhD dissertation. Eight years later, at just 34 years old, he earned his Doctoral (Habilitation) degree in physics and mathematics from KSU. His early development as a scientist was deeply influenced by two semesters at Harvard University (1963-1964), where he worked under the guidance of future Nobel laureate Professor Nicolaas Bloembergen.

Kochelaev's entire scientific, teaching, and public life was inextricably connected with Kazan University and its Department of Theoretical Physics, which he headed from 1973 to 2000. His inspiring lectures were remembered by generations of students, and his textbooks on quantum theory and the quantum theory of solids remain widely used and frequently reprinted. He established his own scientific school: thirty-three of his students earned PhD degrees, and twelve went on to defend doctoral (habilitation) dissertations, becoming professors in Russia, Germany, and the United States. An internationally recognized scientist, Professor Kochelaev collaborated widely and was in demand well beyond Russia. As a visiting professor, he worked at universities and research centers across the globe, including the University of California (USA), the University of Zurich (Switzerland) – where he collaborated with his friend and co-author, Nobel laureate Professor Alex Müller – as well as several universities in Germany (Dortmund, Darmstadt, Augsburg) and the Max Planck Institute in Dresden. He gave numerous invited talks at national and international conferences and symposia.

His primary research interests included electron paramagnetic resonance (EPR), spin dynamics, magnetism, superconductivity, and systems with strong electron correlations. Among his most significant achievements were:

- Developing the theory of spin-phonon interactions in paramagnetic crystals.
- Creating a nonlinear theory of kinetic processes in paramagnetic crystals, explaining phenomena such as the experimentally observed phonon avalanche and superscattering of light under EPR saturation.
- Predicting the effect of non-resonant sound absorption and its giant amplification by radio-frequency fields.
- Advancing the theory of EPR and spin relaxation in conventional superconductors with paramagnetic impurities.
- Contributing to the theory of spin kinetics and magnetic resonance in strongly correlated systems, including high-temperature superconductors and Kondo systems with heavy fermions.

Kochelaev was an active member of the international scientific community. He served on the International Committee of the AMPERE Scientific Society, the Scientific Council on Magnetism of the USSR Academy of Sciences and the Russian Academy of Sciences, and headed the Kazan University research school "Resonance Spectroscopy of Condensed Matter". This school repeatedly won presidential grants for leading scientific collectives of the Russian Federation. He himself was awarded the Presidential Grant for outstanding scientists several times. He was decorated with numerous honors, including state orders and medals of the Russian Federation, the State Prize of the Republic of Tatarstan in science and technology, the titles of Honored Scientist of both the Russian Federation and the Republic of Tatarstan, and the title of "Honored Professor of Kazan University". He was the initiator and editor-in-chief of the international scientific journal Magnetic Resonance in Solids. Electronic Journal (MRSej), founded in 1996 at Kazan University, now indexed in Web of Science, Scopus, and included in Russia's White List of recognized scientific publications (Level 1).

Yet Boris Ivanovich was more than a distinguished academic. He was a man who loved life and lived it fully. In the 1950s, he led a large KSU student team to the virgin lands, for which he was awarded the USSR Medal "For the Development of Virgin Lands" (1958). In the 1960s, he rafted the Tunguska River and spent weeks trekking through the Mari taiga. He loved the Volga River – in the 1970s, he famously put the entire Theoretical Physics Department on water skis. He organized and was the heart of the department's legendary traveling seminars, which attracted future academicians from across the country and abroad.

Kochelaev's artistic side was equally rich: he sketched, took striking photographs, loved to sing, and even organized evenings of Russian romances at the Institute of Physics, performing himself in the "Professor's Show." He recorded many of his memories with wit and humor in his memoirs, which, unfortunately, he did not complete.

Boris I. Kochelaev lived a long, fruitful, and inspiring life. He will be remembered not only as a brilliant scientist but also as a wise, kind, and generous man.

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