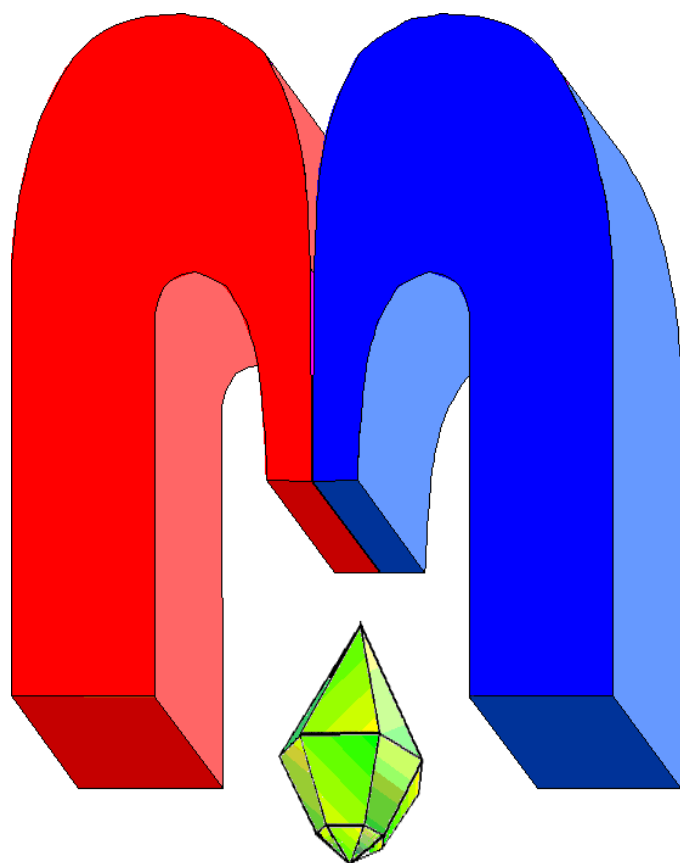


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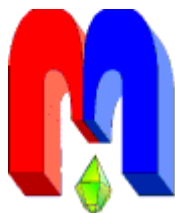
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* In Kazan University the Electron Paramagnetic Resonance (EPR) was discovered by Zavoisky E.K. in 1944.

Professor Boris Zalmanovich Malkin[†]

A.V. Aganov¹, K.L. Aminov², L.K. Aminov¹, S.I. Andronenko¹, N.M. Avram³,
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G.B. Teitel'baum⁸, B.S. Tsukerblat¹⁸, R.V. Yusupov¹, V.S. Zapasskii¹⁹, V.A. Zhikharev²⁰

¹Kazan Federal University, Kazan, Russia; ²Altair Engineering, Troy, USA;

³West University of Timisoara, Romania; ⁴Institut Néel, CNRS, Grenoble, France;

⁵University of Texas, Austin, USA; ⁶University of Tartu, Tartu, Estonia;

⁷Ioffe Physical-Technical Institute, Saint Petersburg, Russia; ⁸Zavoisky Physical-Technical Institute, Kazan, Russia; ⁹Kazan State Power Engineering University, Kazan, Russia;

¹⁰Ural Federal University, Ekaterinburg, Russia; ¹¹Kazan National Research Technical University (KAI), Kazan, Russia; ¹²Prokhorov General Physics Institute, Moscow, Russia;

¹³The University of Warwick, Warwick, UK; ¹⁴Ministry of Education and Science of the Republic of Tatarstan, Kazan, Russia; ¹⁵Institute of Spectroscopy (ISAN), Troitsk, Russia;

¹⁶Vavilov State Optical Institute (GOI), Saint Petersburg, Russia;

¹⁷Harvard University, Cambridge, USA; ¹⁸Ben-Gurion University, Beer-Sheva, Israel;

¹⁹Saint Petersburg State University, Saint Petersburg, Russia;

²⁰Kazan National Research Technological University, Kazan, Russia

*E-mail: yurii.proshin@kpfu.ru

Boris Zalmanovich Malkin is a Professor of Theoretical Physics at Kazan Federal University (also known as Kazan State University). He is a leading specialist in the theory of magnetic and optical properties of condensed matter. Professor Malkin is among the most talented scientists who belong to the school of magnetic spectroscopy established at Kazan State University by Professor S.A. Al'tshuler, corresponding-member of USSR Academy of Sciences.

Boris Malkin was born on June 6, 1939, in the family of a well-known Kazan therapist, Professor Zalman Izrailevich Malkin. After graduating with honor (a gold medal) from School No. 19 in Kazan, Boris got accepted as a student in the Department of Physics and Mathematics of Kazan State University. He became interested in research early, while being an undergraduate student, and started



[†]This note is dedicated to Professor B.Z. Malkin on the occasion of his 80th jubilee

working under the supervision of Professor Al'tshuler. S.A. Al'tshuler continued being both a scientific and personal mentor for Boris Malkin during many years through graduate school and after. In 1965 Boris Malkin got his Ph.D. in condensed matter physics, and in 1984 he obtained the degree of Dr. of Science. For more than half a century, Boris Zalmanovich Malkin has been working at the Theoretical Physics Department of Kazan University. Starting as an assistant professor in 1963 he obtained a full professor title in 1986. Later, during the period 2000–2005, Professor Malkin also served as a Head of the Theoretical Physics Department.

Boris Malkin is a talented scientist and educator. His research contributed significantly to the development of magnetic and optical spectroscopy at Kazan University. In 1970s he developed the theory of exchange charges. This theory, describing the nature of static crystal fields and dynamic effects of electron-phonon interaction in paramagnetic crystals in a unified fashion, is used by multiple research groups even now. He also proposed the first theory of multiphonon relaxation in ruby which was of crucial importance for the laser physics at the beginning of 1960s. This accomplishment gave strong impact to the development of the vast field of electron-phonon relaxation in doped crystals in which he acts as a recognized leader.

Boris Zalmanovich Malkin has a unique ability to provide an interpretation of physical experiments and describe them to a broader audience. He actively collaborates with multiple experimental research groups that study magnetic and optical properties of materials. The list of his collaborators includes more than 230 scientists from the labs spread around the world (his coauthors work in Kazan, Troitsk, Saint Petersburg, Moscow, Ekaterinburg, Krasnoyarsk, Bryansk, *etc.* from Russia; also in France, Germany, Estonia, Romania, USA, United Kingdom, Japan, Korea, and other countries). Many of his research contacts with experimental and theoretical groups were built during his travels as an invited professor. These include the visit to the Clarendon Laboratory in Oxford, UK in 1993, several visits to the Technical University in Darmstadt in 1996, 1997, and also in 1999–2000, a visit to the University of Georgia in Athens, Georgia, USA in 1996, a trip to the École Nationale Supérieure de Chimie de Paris, Paris, France in 2002, and a visit to the University of Tartu, Estonia in 2010.

Boris Zalmanovich Malkin has published more than 150 research papers in Soviet (later Russian) and international journals. His first article in Physical Review B on magnetic order in rare-earth compounds was published in 1975. It should be noted that Boris Malkin keeps this passion for materials with rare-earth elements to this day. Since the end of 1990s, he has published 32 research papers in Physical Review, 5 manuscripts in Physical Review Letters, and one more manuscript in Nature Nanotechnology. Presently, Professor Malkin is among the most cited scientists working at Kazan Federal University. He is an author of several review studies and book chapters, including: B.Z. Malkin, *Crystal field and electron-phonon interaction in rare-earth paramagnets*, in “Spectroscopy of Solids Containing Rare Earth Ions”, Amsterdam: North-Holland, 1987, Ch. 2, pp. 13–50; L.K. Aminov, B.Z. Malkin, M.A. Teplov, *Magnetic properties of nonmetallic lanthanide compounds*, in “Handbook on the Physics and Chemistry of Rare Earths”, Amsterdam, 1996, V. 22, pp. 295–506; B.Z. Malkin, *Ion-phonon interaction*, in “Spectroscopic Properties of Rare Earths in Optical Materials: Springer Series in Materials Science”, V. 83, pp. 130–190, 2005. Moreover, in 2008 Boris Malkin published a monograph “Dynamics and kinetics of electronic and spin excitations in paramagnetic crystals” in co-authorship with Professor L.K. Aminov.

The name of Professor Boris Zalmanovich Malkin is well recognized by the physics community. He organized international conferences and symposia (especially note his significant contribution to the organization of the Feofilov symposia of the last two decades and magnetic resonance

conferences in Kazan). B.Z. Malkin serves as a reviewer for international physics journals including Physical Review Letters and Physical Review, he is also a member of Editorial boards of several physical journals and the expert committee of the Russian Foundation for Basic Research. In 2006 Boris Malkin obtained the Tatarstan State Prize in Science and Technology. Later, the Optical Society named after D.S. Rozhdestvensky awarded him with a medal named after E.F. Gross (2016) and a medal named after S.I. Vavilov (2019). The later nomination recognized Boris Malkin's achievements in studies of coherent dynamics of spin excitations in crystals with rare-earth atoms.

Boris Malkin combines unique skills of being a talented scientist and a great lecturer. During his professorship at the Kazan University, he taught almost all courses that form the basis of contemporary theoretical physics. These include *Thermodynamics and Statistical Physics*, *Theoretical Mechanics*, *Electrodynamics*, and *Quantum Mechanics*. He also developed a series of specialty courses on *Quantum Theory of Paramagnetism*, *Physics of Noncrystalline Media*, *Theoretical Basis of Spectroscopy*, and *Physics of Magnetic Systems*.

Prof. Malkin is a great and successful supervisor; fifteen of his students obtained PhD degrees. For many years, he has served as key person of the Scientific Council awarding PhD and Doctoral degrees at Kazan University. B.Z. Malkin was a member of the Academic Council and Chairman of the Methodical Commission of the Physics Faculty. Professor Malkin is the Honorary Scientist of the Republic of Tatarstan, as well as the Honorary Professor of Kazan University.

Outstanding scientific achievements, brilliant lecturing mastery and remarkable human qualities of Professor Boris Zalmanovich Malkin evoke the deepest respect of his colleagues, friends and disciples.

Happy Birthday, Boris Zalmanovich!
We wish you many fruitful years ahead!