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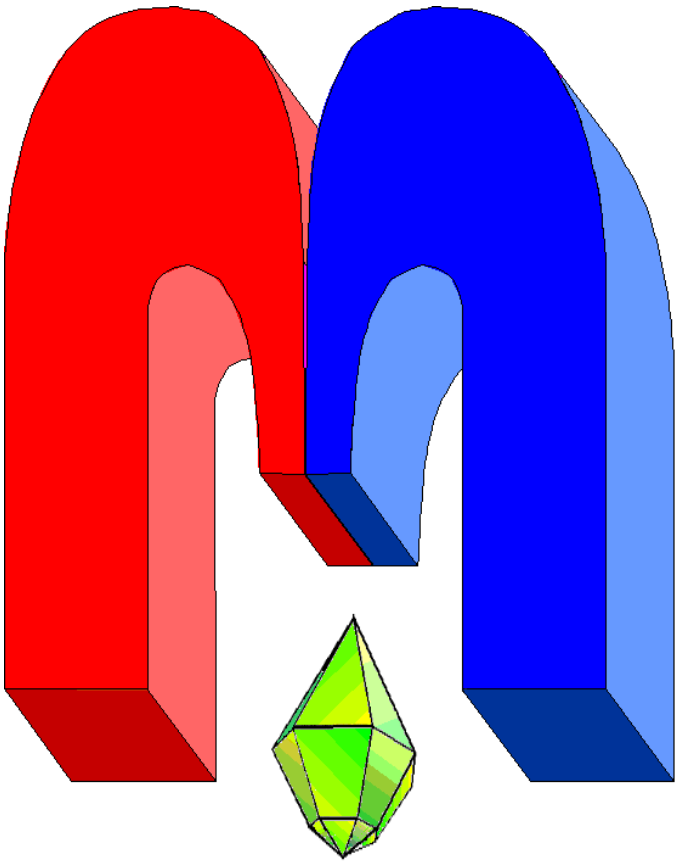

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‡ Dedicated to Professor Boris Z. Malkin on the occasion of his 85th birthday

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Professor Boris Zalmanovich Malkin

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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 Zalmanovich Malkin has published more than 190 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.

In 2019, Boris Zalmanovich Malkin and Prof. Dr. Marina Nikolaevna Popova (Institute of Spectroscopy of the Russian Academy of Sciences) were awarded the D.S. Rozhdestvensky Prize by the Presidium of the Russian Academy of Sciences for the series of papers "High-resolution spectroscopy of crystals containing rare-earth ions". This prestigious prize is awarded every three years by the Department of General Physics and Astronomy of the Russian Academy of Sciences for outstanding work in the field of optics. The award-winning large cycle of papers was carried out during the preceding 27 years and contains the following research results: determination of the contributions of isotopic disorder and random deformations to inhomogeneous broadening and the influence of random deformations on the fine structure of spectral lines; discovery and explanation of the formation of the energy gap in the spectrum of electronic excitations of antiferromagnetic dielectrics in a magnetic field; formulation of a new mechanism of spin-phonon excitations in quasi one-dimensional magnetic materials; elucidation of the role of effects due to hyperfine interactions in the high-resolution spectra of isolated and paired optical centers. The papers of B.Z. Malkin and M.N. Popova played an outstanding role in the development of spectroscopy of crystals activated by rare-earth ions and served as the basis for a number of new research areas.

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*.

Professor B.Z. Malkin is a great and successful supervisor; seventeen of his students obtained PhD degrees. The significance of Professor B.Z. Malkin scientific and pedagogical activity is emphasized by the fact that currently five employees of the Theoretical Physics Department were Ph.D. students under his scientific supervision. 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, Honorary Professor of Kazan University, and Honorary Worker of Higher Professional Education of the Russian Federation (2016).

At present, Boris Zalmanovich is actively involved in scientific research, transfers professional experience and practical knowledge to young researchers. 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!