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Vsevolod Feliksovich Gantmakher (on his seventieth birthday)

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Vsevolod Feliksovich Gantmakher, one of the best-known Russian experimental physicists among the global scientific community, corresponding member of the Russian Academy of Sciences (RAS), Editor-in-Chief of the journal *Pis'ma v Zh. Eksp. Teor. Fiz.* (*JETP Lett.*), celebrated his 70th birthday on October 8, 2005.

Gantmakher began his research in Moscow, in the Institute for Physical Problems of the USSR Academy of Sciences (IPP AS USSR) in 1957 while still a student at the Moscow Physico-Technical Institute (now Moscow Institute of Physics and Technology — MIPT). In 1964 he defended his PhD thesis and then transferred to the Institute of Solid State Physics (ISSP AS USSR), which had been created a year earlier in Chernogolovka. Notwithstanding this transfer, Gantmakher continued to work very intensely at the IPP for three more years, which resulted in defending his DSc thesis in 1967.

Gantmakher achieved world fame among physicists with his discovery of the radiofrequency size effect (RFSE) which opened the way to investigation of the shape of the Fermi surface of metals using relatively simple equipment while obtaining at the same time surprisingly accurate experimental results allowing clear and unambiguous interpretation. Progress in RFSE research led to the discovery of a number of other nontrivial effects in the long-path-length electron plasma of normal metals: the anomalous depth of penetration of radio waves into metals (AP), the emergence of weakly attenuated strings of surges of an electromagnetic field in the bulk of samples, and magnetodynamic nonlinear effects. The results obtained by Gantmakher in this field have moved from science periodicals to student textbooks and carry his name in world literature: the Gantmakher effect (RFSE) and Gantmakher – Kaner waves (AP), while the discoverer himself received the Lenin Komsomol Prize in 1969.

The span of Gantmakher's interests in science is immense. He began his career studying type-I superconductors then researched linear electromagnetic properties of metals: electron scattering processes, acoustics, and the nonlinear high-frequency response in metals. He discovered and studied magneto-impurity oscillations in semiconductors, and studied metal – insulator and superconductor – insulator transitions and conductivity in strongly disordered electron systems and in high-temperature superconductors. In each of these fields he produced world-class results.

Gantmakher wrote two monographs and each became a must desktop feature for both experimentalists in solid state physics and theorists immediately after publication. One of them, *Scattering of Current Carriers in Metals and Semiconductors*, co-authored by I B Levinson, is based to a largely on the work of Gantmakher and his students. The second book, *Electrons in Disordered Media,* is essentially a textbook on the modern topics of solid state physics that have emerged and been expanding in the last two-three decades. Both monographs were translated into English and published abroad immediately after their publication in Russian.

Vsevolod Feliksovich Gantmakher

The move of Gantmakher at the ISSP was beneficial for the research climate in the new institute. With his characteristic vigour, he began to widen the range of subjects of research and to force his indefatigable way of doing things on the life of the entire research staff. These two facets materialized very soon into a new electron kinetics laboratory organized under his leadership. The principal ideas of the Statutes of the Institute and of the Charter for the Research Staff, formulated by Gantmakher together with Yu A Ossipyan and Yu V Sharvin, helped to create a beneficial climate of relations among the employees of the ISSP, provided additional impetus to creative activity, and have continued to regulate interactions within the Institute for more than thirty years.

Gantmakher successfully combines research with intense work at his responsible position of Editor-in-Chief of the leading Russian physics journal — the most rapidly published journal in the world — *Pis'ma v Zh. Eksp. Teor. Fiz.* (*JETP Lett.*).

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Gantmakher's influence on young scientists is enormous. In his position of Professor at MIPT and Moscow State University, he helped train several generations of students.

At the ISSP alone we find six DScs and six PhDs in physics and mathematics who obtained their degrees under his supervision. However, if we counted every colleague with whom he has ever worked in his laboratory, they would definitely number above fifty. Naturally, that Gantmakher heads one of the leading science schools in solid state physics in our country.

Gantmakher's enthusiasm, enormous scientific horizon, kindness and agreeability attract many different people. He has the magic gift of revealing the abilities of young people and giving them a chance to realize their potential in science. He is now seventy years of age but is still full of energy, creative plans, and new ideas.

His friends, colleagues and students congratulate Vsevolod Feliksovich Gantmakher on his jubilee and wish him happiness, health, and new scientific successes.

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I B Levinson, Yu A Ossipyan, É I Rashba,
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