Editorial: Professor Israel D. Vagner

Israel Vagner (1945-2006) was born in Beltsy (Moldavia). His father, professor of history Dagobert Vagner was one of the leaders of Zionist movement in prewar Romania. I. Vagner graduated from Polytechnic Institute in Leningrad. Then he spent several years in A.F. Ioffe Physical-Technical institute as a Ph.D. student under the supervision of L.E. Gurevuch, one of the leading theoreticians in the Ioffe Institute. At that time Izya came to decision to emigrate from USSR to Israel. He interrupted his regular professional career and eventually repatriated to Israel in 1971. During his first years in Israel, Izya Vagner worked as avocado collector, served in Israeli army. After defending Ph.D. thesis in Technion, he couldn't find a regular position and have spent half a year as a security guard in a bank. Meanwhile one of his publications on magnetically quantized 2D electron gas caught sight of Prof. P. Wyder, the then head of the Max-Planck Laboratory of High Magnetic fields in Grenoble. Wyder invited Israel Vagner to his laboratory. Izya spent in Grenoble 15 happy years, returned to Israel in 1998 and eventually has got a position of full professor in Holon Academic Institute of Technology (HAIT).

Physics of electrons in strong magnetic fields became the life-work of Israel Vagner. He elaborated simple but operative method of treating the thermodynamics of two-dimensional electron gas under Landau quantization, made several theoretical predictions in concern to the role of Condon domains in the Quantum Hall regime. He predicted existence of anomalies in the nuclear spin-lattice relaxations in ultra quantum limit (this statement was confirmed by the experiments of K. von Klitzing's group). In collaboration with A. Dugayev he predicted the effect of suppression of superconductivity by the nuclear magnetism. This paradoxical idea was independently formulated by F. Pobell, who observed this effect experimentally. In the very beginning of the boom related to quantum computers, I. Vagner proposed to use 2D electron gas in a Quantum Hall regime as a media for entangling nuclear spins in an elementary cell for quantum computation. His studies cover also the physics of carbon nanotubes, high-T_c superconductors, Aharonov-Bohm effect etc. The monograph *Electrodynamics of Magnetoactive Media* written in co-authorship with B.I. Lembrikov, and P.R. Wyder

and published by Springer Verlag in 2004, summarizes the experience of I. Vagner in the vast field of electromagnetic properties of condensed matter.

Israel Vagner was socially engaged person in the best sense of this word. In 90-es, the hard time for Russian physics, he did a lot to help prominent theorists from leading scientific centers in Moscow, Petersburg and Kharkov. He provided them a possibility to work in Grenoble, and many remarkable scientific results were obtained within the "Wyder-Vagner-net". After getting professorship in HAIT, I. Vagner began transforming his small group in this institute into an attraction center for scientists working in the physics of high magnetic fields. He organized several workshops and international conferences, entered with his group into the large scale European program EUROMAG. "HAIT Journal of Science and Engineering" also is his creature.

Izya's bright personality attracted other people. The circle of his friends was really wide. He had a rare gift to "charge" people with his ideas, which sounded a bit crazy at first glance, but eventually transformed into real projects with significant results. His life was full of unusual adventures and unexpected turning-points. He readily retold episodes from his life to his friends with his incredible Jewish humor. Some of these stories were recorded, and one of them opens the Memorial part of the issue. Other parables of the life of Israel Vagner may be found at the site www.shapirov.area.co.il. If we were asked to summarize Izya's life in one phrase, then it would be "The last true representative of shtetl" who broke through into the big world and made it bigger.

The regular scientific part of the issue begins with three papers, which I. Vagner prepared for publication in collaboration with his friends during the last year of his life. All authors dedicate their papers to the blessed memory of Israel Vagner, remarkable physicist and unusual personality.

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