

In memoriam I.N. Yassievich

On the 30 July 2020, professor Irina Nikolaevna Yassievich, a distinguished theoretical physicist and teacher, who mentored several generations of scientists and contributed to the development of Russian theoretical physics, passed away.

From her father Nikolai Nikodimovich Yassievich, a well-known realist artist of 1930s and 40s, she acquired a vivid, visual imagination.

Early in middle school, Irina decided to devote herself to physics. In 1959, she graduated from the Physical Faculty of Leningrad State University and started work in Ioffe Institute under supervision of L.E. Gurevich. In addition to a deep theoretical analysis of experimentally observed phenomena in semiconductors, she also advanced experimental verification of theoretical results which often resulted in practical applications.

She was a real generator of ideas, which she easily shared with colleagues.

One of Irina's most remarkable results was her work on calculations of hot carriers distribution function in strong electric fields (together with A.P. Dmitriev) which resulted in deep understanding of impact ionization in $A^{III}B^V$ semiconductors. This work laid the foundation of fast avalanche photodiodes, which are promising for applications in fiber-optic communications and information technology. She made a significant contribution to the theory of nonradiative recombination (together with V.I. Perel and V.N. Abakumov), the theory of deep centers in semiconductors (with V.I. Perel), anomalous Hall effect (with V.N. Abakumov), and development of theoretical models of optical properties of silicon nanostructures (with O.B. Gusev, M.S. Bresler and Tom Gregorkiewicz). Several recent important works focused on tight-binding calculations of structural and optical properties of nanocrystals. Of special note is the monograph „Nonradiative Recombination in Semiconductors“ (together with V.N. Abakumov and V.I. Perel), published in the Netherlands in 1991 and later in 1997 in Russia. This monograph is now considered a classic textbook for generations of theoretical physicists.

Irina was an eminent scientist, well-known to colleagues around the world. At the beginning of *perestroika*, as soon as she had a chance, Irina started collaboration with foreign colleagues. In the beginning of the 1990s, she worked at the Universities of Massachusetts and Arizona. For a long time, she was an invited Professor in Lund University in Sweden. She regularly visited the Universities of Regensburg and Frankfurt (Oder) in Germany. For the last 28 years, she kept up a highly productive collaboration with the University of Amsterdam with yearly visits, some together with her colleagues and PhD students from Ioffe Institute.



Irina Yassievich devoted great attention and care to the education of several generations of young scientists, both in Russia and abroad. More than 15 PhD theses were defended under her supervision. There are more than 10 Dr. habil. among her students. The final PhD defence of a student of hers is scheduled for this autumn.

Her path in science was not always easy, but she knew how to fight and win. Irina lived a hard but happy life, raised three daughters, and was always head of a large family. She was an open and friendly person and loved life in all its aspects. She was knowledgeable about classical literature and poetry, and she loved nature, art, music.

Irina exemplified an unwavering devotion to the creative practice of science. Her students, colleagues, and friends will cherish her memory forever.