

ACADEMICIAN ALEXEI V. SIMASHKEVICH – 85TH JUBILEE



June 27, 2014 is a special—85th jubilee—birthday in the life and activity of the Moldovan researcher Alexei V. Simashkevich. He is Full Member of the Academy of Sciences of Moldova, doctor habilitate in physics and mathematics, professor, researcher-consultant of the Institute of Applied Physics of the Academy of Sciences of Moldova (the IAP). Academician Simashkevich has contributed a lot in the development of the Faculty of Physics of Moldova State University (the MSU) and of the IAP, in the progress of semiconductor physics in Moldova, and in training of high-level specialists in physics.

He was born in Chisinau, into a family of intellectuals. In 1947–1952 was a student at the Faculty of Physics and Mathematics, Department of Physics, of the MSU. Then he continued his professional education as a candidate of science at the Chair of Experimental Physics of the same university. It was then that the future academician got interested in the most progressive ideas in semiconductor physics, becoming its loyal and active supporter and developer. Having a high standard of culture, great erudition, and intrinsic intuition, A. Simashkevich has always worked in the forefront directions of semiconductor physics research. He has developed and matured his interest in the study of AII-BVI semiconductors when they were just beginning to get a foothold in electronics.

As a physicist, Alexei V. Simashkevich made his first steps under the guidance of professor Mihail Kot, the founder of the Chair of Electrophysics (today the Chair of Applied Physics and Informatics) of the Faculty of Physics and Engineering at the MSU. First, as a disciple of professor Kot, later as the Head of the Chair at the MSU, A. V. Simashkevich actively participated in the initiation of the specialty "semiconductor physics" at the MSU, in equipping specialized laboratories, and in developing and delivering standard and specialized courses for students for 40 years. For a long time, his scientific interests have been in the study of properties of thin semiconductor crystal layers, which later consolidated into the area of heterojunctions of group AII-BVI semiconductors.

Here are the steps of his scientific biography.

- In 1962 A. V. Simashkevich received his Candidate of Science degree from Vilnius University, Lithuania.
- In 1967-1969, as invited professor, he visited Algeria delivering a course of general physics at the Algerian Petroleum Institute, where he published three course books in French.
- From 1967, during 28 years, Alexei V. Simashkevich was the Head of the Chair of Semiconductor Physics and the Laboratory of Studies in Semiconductor Physics at the MSU.
- In 1979 A.V. Simashkevich received his higher—doctoral—scientific degree (now “doctor habilitate”) in physics and mathematics from the Leningrad Polytechnic Institute (at present St. Petersburg).
- In 1981 he received the title of Full Professor.

Research outcomes of the Chair and Laboratory of Semiconductor Physics related to the properties of the group AIII-BV and AII-BVI semiconductors and heterojunctions based on them have been duly appreciated by the world scientific community. As a result, the USSR Academy of Sciences decided to organize the first All-Union Conference on properties of heterostructures in Chisinau in 1974. The Conference Chairs were Dr. A.V. Simashkevich from the MSU, Chisinau, Moldova and Prof. Zh.I. Alferov (the inventor of the heterotransistor and the 2000 Nobel laureate in physics) from the Ioffe Physicotechnical Institute of the USSR Academy of Sciences. During the years when academician Simashkevich was the Head of the Chair of Semiconductor Physics at the MSU, more than 600 students got their University Diplomas, many of them being citizens of Vietnam, Algeria, Syria, Cuba, Mexico, Germany, Mozambique, etc. Seven researchers from the Chair and the Laboratory received their Doctor Habilitate degrees and over 59 collaborators became Candidates of Science (in physics and mathematics and in engineering). Personally A.V. Simashkevich was the scientific adviser of 25 future doctors of science. The results of the research and teaching activities of A.V. Simashkevich are evidenced in over 300 communications at national and international conferences, 27 patents, around 600 scientific publications including chapters in 4 monographs and 6 course books.

Outcomes of his theoretical investigations can be summarized as follows:

The technology for obtaining crystals, thin films, and heterostructures based on group II-VI compounds has been developed; the mechanism of the charge carrier transport via these heterostructures has been established; the respective energy diagrams have been proposed; the energy spectrum of impurities in AII-BVI compounds and in solid solutions based on them, as well as the role of those impurities in the formation of the radiation spectra and of photo-conduction, have been determined; electroluminescence in the obtained heterostructures has been studied and a number of optoelectronic devices (luminescent diodes, efficient detectors of the electromagnetic and ionizing radiation have been designed etc.).

The scientific and managerial activities of academician Simashkevich have been duly appreciated. In 1983 he was decorated with the State Prize of the Republic of Moldova in Science and Technology. In 1989 a group of his colleagues and followers were decorated with the same prize, which means a high appreciation of the scientific school founded by academician Alexei Simashkevich. The same year he was elected Corresponding Member and in 1992 Full Member

of the Academy of Sciences of Moldova. As a continuation of his personal recognition, in 1995 academician Alexei Simashkevich was elected academician-coordinator of the Section for Mathematical, Physical, and Engineering Sciences of the Academy of Sciences of Moldova and a member of its Presidium.

Since then, academician Simashkevich has been working for the Academy of Sciences of Moldova, being the founder of a joint MSU-IAP Laboratory for Materials and Structures for Solar Energetics and remaining a prolific researcher of the IAP till nowadays. The entire period at the IAP, academician Alexei Simashkevich, first as the Laboratory Head and today as leading researcher-consultant of the IAP, pays special attention to the development of R&D of photovoltaic devices. He was Deputy Director in 2001 and Acting Director of the IAP in 2002–2005. Being a member of the administration of the Academy and then of the IAP in the hard periods for academic institutions, acad. A.V. Simashkevich made a significant contribution into the maintenance of the material and human assets of the institutes of Section headed by him and their integrity.

Research and teaching activities of academician Alexei Simashkevich have always been harmoniously combined with administrative and social work. Diversity of interests and areas of activity, amicability in the relationships with colleagues and students, high intellectual and cultural standards—all that makes it just to say that academician Alexei Simashkevich deserves to be of the highest rank on the scientific hierarchy scale, a hard and laborious but rewarding duty.

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