

In memory of Vasilii Ivanovich Shveikin (4 February 1935–4 January 2018)



Vasilii Ivanovich Shveikin, originator of semiconductor laser research and development at OJSC M.F. Stel'makh Polyus Research Institute, doctor of engineering, professor and Lenin Prize winner, passed away on 4 January after a long, serious illness.

Shveikin was born in Moscow. In June 1958, he graduated from the Faculty of Physics, Moscow State University (MSU), and entered a postgraduate programme. In 1961, after successfully defending his candidate of science (physics and mathematics) dissertation, he became a Junior Research Fellow at the Faculty of Physics, MSU. From October 1962, Shveikin was a Fellow at Polyus, where he worked for more than 40 years.

Shveikin's pioneering research enabled the advent of semiconductor lasers in the USSR. In March 1963 (a year after Polyus was established), operation of a gallium arsenide injection semiconductor laser was demonstrated at the institute under his guidance and with his direct participation.

In 1965, the first commercial laser diode (LD-1) and a Kometa semiconductor laser were made at Polyus. Their chief designer was Shveikin.

All his working life was connected with Polyus. Shveikin passed a long way: from head of a laboratory (1963) to Chief Research Fellow (2001). Research work under his guidance made it possible to lay the foundations of basic technological

processes for the manufacture of semiconductor lasers, produce a range of processing equipment for the fabrication of planar heterostructures and develop technologies for converting them into particular articles. From 1978 to 1990, Shveikin was the Chief Designer of semiconductor lasers in the Ministry of the Electronics Industry.

Shveikin created a school of thought in the field of the technology of semiconductor lasers. He supervised 21 candidate of science and 3 doctoral dissertations. Two of his pupils became USSR State Prize winners in the field of semiconductor laser technologies. Shveikin founded a specialised department of the Moscow Institute of Radio Engineering, Electronics, and Automation at Polyus and was its first head. He was a member of the Academy of Engineering Sciences, authored more than 170 scientific publications and held more than 100 inventor's certificates and patents.

Shveikin brought up a pleiad of eminent scientists, engineers, technologists and designers. He and his colleagues at Polyus developed hundreds of semiconductor lasers for various applications. Under his guidance, a great diversity of semiconductor lasers and emitters were designed and commercialised for the first time in the USSR.

Shveikin actively participated in the implementation of a number of targeted programmes in the field of semiconductor lasers. One important result was that a solution was found to the complex problem of extending the life of semiconductor lasers. The operating life of cw lasers for optical fibre communication systems was extended from a few to hundreds of thousands of hours.

For the development and implementation of semiconductor lasers, Shveikin and his collaborators were awarded the 1972 Lenin Prize. For his great contribution to the development of semiconductor quantum electronics, Shveikin was awarded the Order of the Red Banner of Labour and medals.

Vasilii Ivanovich Shveikin, originator of semiconductor laser research and development at Polyus, inspirer and organiser of research on commercial semiconductor laser devices and their technologies and creator of a school of thought in the field of the technology of semiconductor lasers, will always be remembered in the hearts of his colleagues, teammates and pupils, who are employing and amplifying his achievements.

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