

Obituary

Stepan Alekseevich Semiletov 1925–1988

The community of Soviet crystallographers suffered a heavy loss on 27 July 1988 when Professor Stepan Alekseevich Semiletov, the head of the electron diffraction laboratory of the Institute of Crystallography of the USSR Academy of Sciences, died after a long and serious illness.

S. A. Semiletov was born on 9 July 1925 in the small village of Kalinino (Kalinin District, the Armenian Soviet Socialist Republic) into a farmer's family. In 1943, immediately upon graduation from the secondary school, he became a soldier in the Great Patriotic War. Being seriously wounded, he was demobilized and entered the Physics Department of the Erevan Pedagogical Institute. He graduated from it in 1949 and the following year became a post-graduate student of the late Professor Z. G. Pinsker, then the head of the electron diffraction laboratory of the Institute of Crystallography. It was then that S. A. Semiletov started his pioneering research on thin films of chalcogenides. In 1953 he became a Candidate and in 1969 a Doctor of Physical-Mathematical Sciences. Since 1971 Professor Semiletov has been the head of the electron diffraction laboratory of the Institute of Crystallography of the USSR Academy of Sciences.

S. A. Semiletov made an essential contribution to the physics of thin films and microelectronics. In 1954 he suggested a new epitaxial technique for the preparation of *p-n* junctions and developed an electron diffraction method for investigating epitaxial layers and surface structure. He was among the first to use molecular beam epitaxy and oriented layers of semiconductors–piezoelectrics nowadays widely used in acousto- and optoelectronics.

S. A. Semiletov with his co-workers performed a series of experiments on the structures of chalcogenides of the 3rd and 5th groups of the Periodic Table. He compiled a system of octahedral covalent radii similar to the Pauling–Huggins system of tetragonal covalent radii. He also suggested a method for determining vacancy concentration in semiconductors with tetrahedral coordination based on the precise determination of the lattice parameter. In 1986 Semiletov was awarded the Fedorov Prize of the USSR Academy of Sciences for his studies of semiconductors by the electron diffraction method.

S. A. Semiletov was an author of 200 scientific publications and 18 inventions. He was awarded the title of Honoured Scientist of the Russian Federative Socialist Republic and several state prizes and decorations.

The scientific and social activities of Professor Semiletov were widely recognized in the Soviet Union and abroad. He was a member of several scientific councils and the Commission on Electron Diffraction of the IUCr, and a member of the editorial board of *Microelectronics* journal. In 1987 he was elected a member of the Executive Committee of the International Union of Crystallography.

His deep knowledge in many fields of physics and his fine human qualities will always be prominent in the memory of all his colleagues and friends.

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