

## **Viktor Oleksiyovich Presnov and his main contribution to physics of semiconductors and electronic technique**



### **To 100-th anniversary of his birthday**

The name of Viktor Oleksiyovich Presnov is tightly bound with investigations of properties inherent to glass and electrovacuum ceramics, especially with his studying aimed at the nature of mechanically hard and vacuum-tight coupling of glass and ceramics with metal. The

obtained results served as a basis of his doctor thesis "Investigations for physics of seal". These investigations were the first wide generalization in the world practice, which was devoted to the nature of such coupling between heterogeneous materials. It enabled to solve the problem to create metal-ceramic radio valves for the microwave range.

Created in the USSR for the first time were Gunn diodes as well as a whole number of electronic devices, where bulk effects in semiconductors were used, in particular, chip transistors based on gallium arsenide.

In Odessa, Prof. V.O. Presnov together with his disciples grew artificial diamonds with semiconductor properties and ceramics on their base with unique performances, in particular, new thermostable dielectric material OKMAJI. He and his followers performed the large cycle of investigations of electric, optical and thermalphysic properties of semiconducting diamonds as well as their interaction with biological objects. Under his guidance, there developed were physical-and-technological basics for creation of high-frequency devices for the millimeter range, which were based on the Schottky barriers with unique parameters.

Created in the lab for physical basics of electronic engineering were new highly-sensitive sensors of optical radiation, magnetic field, pressure and so on. He is the founder of a power scientific school of solid state electronics in Odessa. He was the supervisor of 57 candidate theses. His 12 disciples became doctors of sciences.

### **The main dates of V.O. Presnov's life**

1917, 2 December – born in Anzhero-Sudzhensk, Kemerovo region, Russia.

1935 – student at the Novosibirsk State University of Architecture and Civil Engineering.

1936–1941 – work in the Tomsk State University.

1950 – Ph.D. thesis.

1951 – associate professor.

1961 – Doctor of Science.

1961 – Professor, head of the Department of Semiconductor and Dielectric Physics, Tomsk State University.

1964–1968 – Director and scientific adviser of the Research Institute of Semiconductor Devices, Ministry of Electron Industry.

1968–1984 – Physical Department of I. Mechnikov Odessa State University, Head of the Sub-faculty of Physical Electronics.

1985 – awarded with the State Prize of UkrSSR.

1987, 17 July – died in Odessa.

### **Selected bibliography**

1. Presnov V.A., Nadvorskiy Yu.B., Yakubenya M.P. Osnovi tekhniki i fiziki spaya. Tomsk, Izd. TGU, 1961, 236 (in Russian). (Bases of seal technique and physics).
2. Presnov V.A., Lubimov L.M., Berdov G.I., Rubashev .M.A. Metallokeramicheskiy spai v ekektronnoy i atomnoy promyshlennosti. Moskva – Atomizdat, 1962 (in Russian). (Metal-ceramic seal in electronic and atomic industry).
3. Presnov V.A. Paramagnitniy resonans melkikh aktseptorov v GaAs. Fizika Tverdogo Tela, 1967, **9**, 3332 (in Russian). (Paramagnetic resonance of shallow acceptors in GaAs).
4. Presnov V.A. Paramagnitniy resonans v legirovannom Fe GaAs. Fizika Tverdogo Tela, 1967, **10**, 268 (in Russian). (Paramagnetic resonance in GaAs doped with Fe).
5. Presnov V.A. Poluchenie i issledovanie *p-n*-perekhodov na osnove sinteticheskikh poluprovodnikovoykh almazov, DAN SSSR, 1976, 228 (5) 1080 (in Russian). (Manufacture and investigation of *p-n*-junctions based on synthetic semiconductor diamonds).
6. Presnov V.A. Bioelektronniy mitoz kletok. Odessa, 1976 (in Russian). (Bioelectronic mitosis of cells).
7. Presnov V.A., Rotner Yu.M. Termostoikie dielektriki i ikh splavi s metallom dlya novoi tekhniki. Moskva, Atomizdat, 1980 (in Russian). (Thermostable dielectrics and their seals with metal for new engineering).
8. Presnov V.A. Kvantovaya bioelektronika (Uchebnoye posobiye). Odessa, 1980, 112 (in Russian). (Quantum bioelectronics (Handbook)).

Prof. Oleksandr O. Ptashchenko

*SPQEO Editorial Board*