Obituary

The Editorial Board of the Ukrainian Journal of Physical Optics announces with deep regret the death of Professor Lisitsa Mykhailo Pavlovych that has befallen on January 10th 2012 at the age of 91. He has been an outstanding Ukrainian scientist in the fields of optics, solid state physics and physics of semiconductors, a member of the Editorial Board of the Ukrainian Journal of Physical Optics, an Honoured Worker of Science and Engineering of Ukraine, a laureate of the Ukrainian State Prizes in the field of science and engineering, and an Academician of the National Academy of Sciences of Ukraine.

Lisitsa M. P. has become a distinguished Ukrainian scientist in the areas of optics and spectroscopy, nonlinear optics and quantum electronics, solid state physics and physics of dielectrics and semiconductors. His scientific interests have embraced electronic, phononic and structural properties of gaseous media, liquids and solids, including semiconductors, biological objects, and living organisms. The scientific activities by Lisitsa M. P. have been characterised by exceptional breadth and versatility. They have been aimed at comprehending deeply the processes of interaction of electromagnetic radiation with physical systems and structures of different types, at the extensive studies for the mechanisms of interaction of elementary excitations in the physical objects and their manifestations in the optical spectra, at revealing the main regularities of optical response of different systems under external influences (including the threshold ones), such as damaging irradiation, mechanical stresses, temperatures, etc.

Among the major scientific results by Lisitsa M. P., here we only mention discovery and interpretation of a novel physical phenomenon, a combined Fermi–Davydov resonance, which has initiated broad-range experimental and theoretical studies of intra-molecular Fermi resonance and inter-molecular Davydov's resonance in molecular crystals. He has discovered the effect of disappearance of excitons under conditions of high concentration of photo-generated carriers, and the appearance of mixed electron–hole plasma. As early as in 1960–1970 he has revealed the effect of saturation of the inter-band absorption and a drastic bridging into a regime of induced optical transparency, which is observed in coloured glass filters under laser irradiation. Together with his scientific followers, Lisitsa M. P. has discovered two novel nonlinear optical polarisation phenomena: an excessive nonlinear optical activity in gyrotropic crystals and a novel principled gigantic optical activity in non-gyrotropic cubic crystals with the impurity tunnel centres. These phenomena should create novel facilities for controlling characteristics of light beams.

Among the scientific disciples of Lisitsa M. P., there are two Corresponding Members of the National Academy of Sciences of Ukraine, more than 20 Doctors of Sciences, and 50 Candidates of Sciences. The areas of his scientific school in optics and spectroscopy include the absorption optics of different types of elementary and collective excitations in semiconductors, luminescence, Raman scattering of light in solids, as well as a number of novel polarisation phenomena. The Honoured Worker of Science and Engineering of Ukraine and the Academician of the National Academy of Sciences of Ukraine, Lisitsa M. P. has been a co-author of more than 500 scientific works and about 40 inventor's certificates. Together with his followers, he has published six scientific monographs. Among these there are "Fibre optics", the first in the world republished afterwards in English, and a five-volume edition "Entertaining optics" appointed for a broad readership.

A prominent scientist, talented organiser, a splendid man and a good friend – such he shall forever remain in our hearts.