

## Éduard Vladimirovich Shpol'skiĭ (obituary)

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On August 21, 1975, Professor Doctor of Physico-mathematical Sciences Éduard Vladimirovich Shpol'skiĭ, Honored Scientific Worker of the RSFSR and a USSR State Prize Laureate, died suddenly at the age of 83. The journal *Uspekhi Fizicheskikh Nauk* had lost its Editor-in-Chief.

The life of this man was unbelievably many-faceted. He was a major scientist who discovered an effect (which bears his name) and originated a new trend in molecular spectroscopy. He was a remarkable teacher who, for more than forty years, headed the Theoretical Physics Department of the Moscow State Pedagogical Institute and authored a textbook on nuclear physics that is still, after about thirty years, a ready reference for anyone embarking on the study of quantum physics. He was a talented publicist and editor who directed work on the journal *Uspekhi Fizicheskikh Nauk* for more than half a century and on the abstract journal "Fizika" for over twenty years.

While still a student, Shpol'skiĭ began scientific work in the physics laboratory of the Shanyavskii Moscow City University, to which P. N. Lebedev, P. P. Lazarev, G. V. Vul'f, and others had transferred from Moscow University in 1911. Shpol'skiĭ often acknowledged the important part played in his scientific development by the then well-known "Lebedev Colloquium." Shpol'skiĭ was strongly influenced by his immediate supervisor, P. P. Lazarev, by his friendship with his co-worker S. I. Vavilov, and by the warm comradely atmosphere that prevailed in the laboratory. His first scientific paper, which was prepared under the supervision of Lazarev, was devoted to the chemical effects of x-rays. During the First World War, Shpol'skiĭ worked as a roentgenologist in a medical x-ray laboratory, and later with a mobile laboratory that serviced the military hospitals of Moscow Province.

In 1918, Shpol'skiĭ resumed his scientific activity at the Institute of Physics and Biophysics of the National Committee on Public Health, which had been organized by Lazarev and where he worked together with Vavilov, G. S. Landsberg, and T. K. Molodyi. Here he began research projects that were later continued at Moscow University, and, after 1932, at the Moscow State Pedagogical Institute; these studies were to determine Shpol'skiĭ's scientific interests for many long years to come. A study of the dye sensitization of photochemical reactions and its relation to fluorescence, the use of



spectral methods to solve biophysical and biochemical problems, investigation of the absorption and luminescence spectra of carcinogenic complex aromatic compounds, the discovery and investigation of quasiline spectra, the development of a new trend in molecular spectroscopy (the fine-structure electron-vibration spectroscopy of complex organic compounds)—these were the principal milestones in Shpol'skiĭ's scientific biography.

It is characteristic of all of Shpol'skiĭ's scientific works that practical applications were found for them. The x-ray research resulted in the development of a chemical x-ray dosimeter. The experience accumulated with fluorescence in the study of dyestuffs was put to use during the Second World War.

During the period in which Shpol'skiĭ was working actively in biophysics, he and his co-workers demonstrated the identity of hemoglobin in transparent solution to the hemoglobin in erythrocytes and indicated methods for properly conditioned experimental study of absorption spectra in strongly scattering media.

Investigation of the absorption and fluorescence spectra of polycyclic aromatic hydrocarbons, with the dis-

covery of the sharp narrowing of their spectral bands in frozen polycrystalline solutions, led to such a simple and effective way of determining ultrasmall quantities of these compounds in natural mixtures and in the environment that Shpol'skii's method came into use in luminescence-spectral analysis long before the nature of the Shpol'skii effect had become clear. The discovery of quasiline fluorescence and absorption spectra (1952) placed in the hands of investigators an extremely efficient method for study of complex organic molecules and subtle effects related to intermolecular interactions and a method for study of electron-phonon interactions in doped organic crystals.

For his work in this area, Shpol'skii was awarded the USSR Academy of Sciences S. I. Vavilov Gold Medal in 1962, and a USSR State Prize in 1971.

From the very outset of his creative career, Shpol'skii displayed a trait that was to shape his eventual destiny in many respects—the compulsion not only to work for science and not only to acquire knowledge, but also to share it generously. These social and academic proclivities, which appeared very early, found an outlet in his many-sided teaching activity, to which he devoted much time and effort during the 1920's and early 1930's. First there were papers and lectures, translations of articles on priority physical subjects, and then the independent preparation of the second volume of *Uspekhi Fizicheskikh Nauk*, which Lazarev had founded in 1918. For the rest of his life, Shpol'skii edited this journal, which played a major role in the training of many generations of physicists.

Shpol'skii's more than fifty years of work as the Editor-in-Chief of *Uspekhi Fizicheskikh Nauk*—an example unequalled in the history of Soviet science—clearly demonstrated his broad erudition, his principles, and his ability to understand and support new trends in physics.

Shpol'skii's work as an editor and publicist was not limited to this one journal. He translated and edited textbooks and monographs, and organized the publication of the scientific series "Contemporary Problems of Natural Science," "Classics of Natural Science," and "Recent Currents of Scientific Thought." This wealth of organizational experience enabled Shpol'skii in 1953 to take charge of the USSR's first abstract journal, "Physics," whose Editor-in-Chief he remained to the end of his life.

All is left to posterity. Students have in their hands the new editions of the two-volume "Atomic Physics," which appeared at the end of 1974. The *Uspekhi Fizicheskikh Nauk* is being published and will continue to be published (he even consigned the September issue to the printer). The Theoretical Physics Department of the Moscow City Polytechnic Institute grows on, and the Problems Laboratory in this department is being expanded. Each month, a new volume of the abstract journal *Fizika* reaches the library. And all of these things compose a monument to Eduard Vladimirovich Shpol'skii, an outstanding scientist, teacher, and disseminator of knowledge.

Translated by R. W. Bowers.