ARKADIJ PETROVICH IVANOV (ON HIS 60TH BIRTHDAY)

The famous Soviet scientist Professor Arkadij Petrovich Ivanov, a prominent specialist in the optics of scattering media, Director of the Laboratory of the Institute of Physics of the Academy of Sciences of the Belorussian SSR, Corresponding Member of the Academy of Sciences of the Belorussian SSR, and Doctor of Physical and Mathematical Sciences, celebrated his 60th birthday on December 29, 1989.

A.P. Ivanov began his scientific career at the S.I. Vavilov State Optics Institute. His first scientific works were devoted to the spectroscopy of dispersed luminescing objects. He wrote his candidate's dissertation, which he defended in 1958, on this subject.

Since 1959, A.P. Ivanov's fate and scientific work have been firmly rooted in the city of Minsk and the Institute of Physics of the Academy of Sciences of the Belorussian SSR. His organizational talent, the wide range of his scientific interest, and his ability to analyze new problems deeply and thoroughly — later manifested in investigations performed by him and under his direction — were already evident then.

The experimental study of the interaction of light with scattering media at that time required a large amount of routine work and substantial amounts of money. This was especially true for field experiments in the atmosphere and in the ocean. A.P. Ivanov proposed a method of experimental optical modeling based on the principle of optical similarity. This method was very promising and simple to implement. Arkadij Petrovich had to perform a great deal of methodical work and to exhibit the perseverance and talent of a scientist and propagandist in order to convince the scientific establishment of the effectiveness of the method. He used this method as a basis for a number of original investigations on the optics of scattering media, spectroscopy, and luminescence. In 1966 he defended his doctoral dissertation based on the results of this work.

The emergence of A.P. Ivanov as a scientist coincided with a renaissance period in optics, associated with the development and widespread adoption of lasers in science and practical work. The advent of fundamentally new sources of radiation not only opened up new possibilities, but it also presented scientists with many new nontrivial problems. With his characteristic energy and craving for following unexplored paths Arkadij Petrovich together with the staff of the laboratory he founded set to work on a wide spectrum of new problems. One of the most outstanding results obtained in the 1960's was the clarification of the characteristics of the propagation of narrow beams of light and the investigation of nonlinear optical phenomena in scattering media.

In 1964 A.P Ivanov organized the first expedition in the Soviet Union whose scientific program included work on laser sounding of water in natural reservoirs. The development of a method of laser sounding of the atmosphere and water later became one of the main directions of his scientific work. In the 1960's – 1980's an entire series of lidars of different types and for different purposes was developed under his direction; these lidars made it possible to obtain many unique results. It is sufficient to mention the multifrequency laser sounding data, obtained at the beginning of the 1980's, on the altitude dependence of the spectra of the backscattering coefficient of the atmospheric aerosol. With regard to their spectral range and the number of working frequencies these results are unique even today in worldwide scientific practice.

A.P. Ivanov devotes a great deal of attention to the development of methods and apparatus for measuring the optical characteristics of the environment. This work has direct practical applications for problems in ecology. These instruments include the already-mentioned lidar technique as well as a series of hydrooptical instruments which were developed under his direction and with his direct participation. The high quality of the apparatus developed is evident from the results of scientific expeditions, in many of which Arkadiĭ Petrovich actively participated. The expeditions performed under his direction cover an extensive geographical territory: the territory of the Soviet Union from Bellorussia to Kamchatka, from the Kola Peninsula to the desert of Karakum, and the Pacific, Indian, Atlantic, and Northern Arctic Oceans.

A.P. Ivanov is working ceaselessly and painstakingly to train new scientists. One doctor of science and 29 candidates of science have been trained under him. He founded in Minsk a well-known scientific school. The results obtained by A.P. Ivanov and his coworkers have been published in six monographs (one of them has been translated into English), devoted to general problems in the optics of scattering media, the physical principles of hydrooptics, the scattering of light in the optics of photographic layers and luminescent screens, the specifics of scattering of light in closely packed media, and the theory of radiation and image transfer.

A.P. Ivanov is devotinga great deal of attention to societal work. He is a member of a number of councils on the problem of the propagation of electromagnetic waves and he is a member of the editorial staff of the journals Optics of the Atmosphere and Physics of the Atmosphere and the Ocean.

A.P. Ivanov has a wide range of scientific interests, a deep understanding of the physics of the phenomena he studies, high standards, enormous capacity for work, modesty, and good will.

A.P. Ivanov celebrates his sixtieth birthday at the peak of his creative powers. The editorial staff of Optics of the Atmosphere cordially congratulates Arkadij Petrovich on behalf of scientists and readers of this journal and wish him good health and new creative successes in science.