

Yuriĭ Georgievich Abov (on his seventieth birthday)

A. D. Gul'ko, F. S. Dzheparov, I. L. Karpikhin, S. M. Kalebin, V. S. Kaftanov,
P. A. Krupchitskiĭ, and A. L. Suvorov

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Yuriĭ Georgievich Abov, a very prominent specialist in the field of nuclear physics and a Corresponding Member of the Russian Academy of Sciences, became 70 years old on November 7, 1992.

His scientific activity began in 1947 when, after graduating from the Physics Department of Moscow State University, he entered the Institute of Theoretical and Experimental Physics (at that time Laboratory No. 3 of the Academy of Sciences of the USSR, which was founded and directed by Academician Abram Isaakovich Alikhanov). From the very start of his scientific activity, Yu. G. Abov worked on the range of nuclear physics problems which the recently founded Institute had begun to study. He took an active part in the start-up operations of the first experimental heavy water nuclear reactor in our country; under his direction, the first Cauchois type neutron crystal spectrometer in our country was built and measurements were made of the neutron cross sections of fissile nuclei. A three-crystal neutron spectrometer with high angular resolution and double monochromatization was built, and atomic ordering phenomena in alloys and the defect structure of crystals were investigated.

Yu. G. Abov wrote a long series of papers in the field of reactor physics; in particular, he created the crucial test bed for a heavy water reactor of an atomic electric power plant and measured the basic constants used subsequently in reactor calculations.

Research on violation of parity conservation phenomena

in nuclear interactions was the main direction of Yu. G. Abov's scientific papers after 1960. At this time he was appointed chief of the laboratory, and the first beams of polarized thermal neutrons in our country, that instrument, by means of which violation of parity conservation was investigated in nuclear reactions, were created under his direction. These papers led to the discovery of the weak nucleon interaction in nuclei. The asymmetry of gamma quantum emission in the radiative capture of polarized neutrons by ^{113}Cd nuclei was observed experimentally. The series of papers on this subject was rewarded by a Lenin Prize for 1974 and was recorded as a discovery.

The range of Yu. G. Abov's interests is very broad. He created a new approach to investigating nuclear magnetic resonance (NMR) and the relaxation of nuclei in crystals; Beta-NMR spectrometry. The phenomenon of multispin nuclear magnetic resonance and the rearrangement (splitting) of the three-spin resonance by the action of two strong alternating magnetic fields in lithium fluoride crystals were discovered.

At the same time, under the direction of Yu. G. Abov, a beam of ultra-cold neutrons was obtained at the reactor of the Institute of Theoretical and Experimental Physics, and a magnetic trap was built to confine them; the confinement of ultracold neutrons has been achieved, as determined by free neutron decay.

Since 1978, Yu. G. Abov has taught at the Moscow



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Engineering Physics Institute, where he offers special courses on neutron physics and directs the work of colleagues at the nuclear reactor of the Moscow Engineering Physics Institute. He has written the monograph *Polarized Slow Neutrons* and the textbooks *Neutron Beams and Neutron Optical Phenomena*, *Neutrons and the Fundamental Symmetries*, and others.

Yu. G. Abov does much difficult scientific organizational work: he is a member of the bureau of the Nuclear Physics Section of the Russian Academy of Sciences, a member of a number of specialized committees of the VAK (Higher Attestation Commission), and a member of the Scientific and Technical Councils of the Institute of Theoretical and Experimental Physics and of the Moscow Engineering Physics Institute. At present he is Chief Editor of the important scientific journal *Yadernaya Fizika* (*Nuclear Physics*). As the head of the Institute of Theoretical and Experimental Physics laboratory, Yu. G. Abov showed himself to be a good organizer and educator. His students are professional specialists in the fields of nuclear and solid state physics. Many of them have defended doctoral and candidate dissertations.

Fortunately for him and those around him, Yuriĭ Georgievich does not limit himself to a range of purely scientific and physical interests. For a long time he directed an association for the study of the philosophy of natural science, for which he himself studied these questions very thoroughly. His erudition in the field of philosophy is generally immense. He also loves music, poetry, and pictorial art. And he not only loves them, but also understands and knows them well. Therefore, association with him is always pleasant and useful. He always remains a modest person who does not parade his knowledge, who is ready to listen to a conversationalist of any rank, and to offer him help if needed. What is especially surprising in Yu. G. Abov is his very great objectivity: he is ready to support the new undertakings of his colleagues even to the detriment of his own interests.

The friends and colleagues of Yuriĭ Georgievich wish him with all their hearts many, many more years of just as fruitful work in the fields that he loves, good health, and happiness!

Translated by Frederick R. West