

## On the Seventy-Fifth Birthday of Ivan Aleksandrovich Shcherbakov



Academician Ivan Aleksandrovich Shcherbakov, an outstanding scientist in the field of laser physics, prominent science manager on the national scale, secretary academician of the Physical Sciences Division of the Russian Academy of Sciences (RAS), member of the RAS Presidium and director of sciences at the A.M. Prokhorov General Physics Institute, RAS, turned 75 years old on 11 April.

Shcherbakov was born on 11 April 1944 in Moscow in the family of Aleksandr Sergeevich Shcherbakov, a prominent Soviet statesperson and Communist Party official. In 1967, after graduating from the Moscow Power Engineering Institute, he started his career at the P.N. Lebedev Physical Institute, USSR Academy of Sciences (UAS), first as an engineer and then as a Junior Research Fellow. He defended his candidate of science dissertation in 1971 and his doctoral dissertation in 1979.

After the General Physics Institute (GPI), UAS, was founded in 1983, Shcherbakov worked at GPI as head of the Laser Crystals Division and then headed the Department of Laser Crystals and Solid-State Lasers. In 1998, on the recommendation of Academician A.M. Prokhorov he was elected director of GPI and he headed GPI, which was named after Prokhorov, until 2018. In the years difficult for the country and science, it was in large part due to his effort that GPI persisted as RAS' leading scientific institution, still continuing scientific traditions set by its founder Academician

Prokhorov, a winner of the Nobel Prize in Physics. Since 2018, Shcherbakov has been director of sciences at GPI.

Shcherbakov is a member of the editorial board of New Russian Encyclopaedia, editor-in-chief of the Physics of Wave Phenomena Journal, professor and head of the Department of Laser Systems and Structured Materials at the Moscow Institute of Physics and Technology. He is a member of the editorial council of the *Kvantovaya elektronika* (Quantum Electronics) journal and the author or co-author of many papers published in it.

Shcherbakov's work is well known to experts in the fields of laser physics, spectroscopy, nonlinear optics and quantum optics. He studied electron excitation energy transfer processes in solid solutions of rare-earth ions and gained insight into general relationships between the microscopic parameters governing the transfer processes and the magnitude of energy relaxation in an entire ensemble of interacting particles.

His theory of optically dense gain media made it possible to create a number of novel optically active materials, basic to new types of solid-state lasers. One such material is single-crystal rare-earth-doped  $\text{GdVO}_4$ , which possesses unique thermomechanical and gain characteristics. For a series of studies into excitation energy conversion processes in laser gain media, Shcherbakov was awarded the A.M. Prokhorov Gold Medal in 2013. His results on the spectroscopy of laser crystals are presented in handbooks. His research into interaction of laser light with biological objects and tissues is of great scientific and practical importance.

Shcherbakov is an extremely cultured, educated and decent person, sensitive to his colleagues' opinions. The extraordinary charisma of his personality shows up during each contact with him.

We heartily congratulate Ivan Aleksandrovich Shcherbakov on his anniversary and wish him good health and new achievements for the benefit of Russian science.

*Colleagues and friends*