

40th ANNIVERSARY OF THE PROKHOROV GENERAL PHYSICS INSTITUTE,
RUSSIAN ACADEMY OF SCIENCES

40 years of the Prokhorov General Physics Institute, Russian Academy of Sciences

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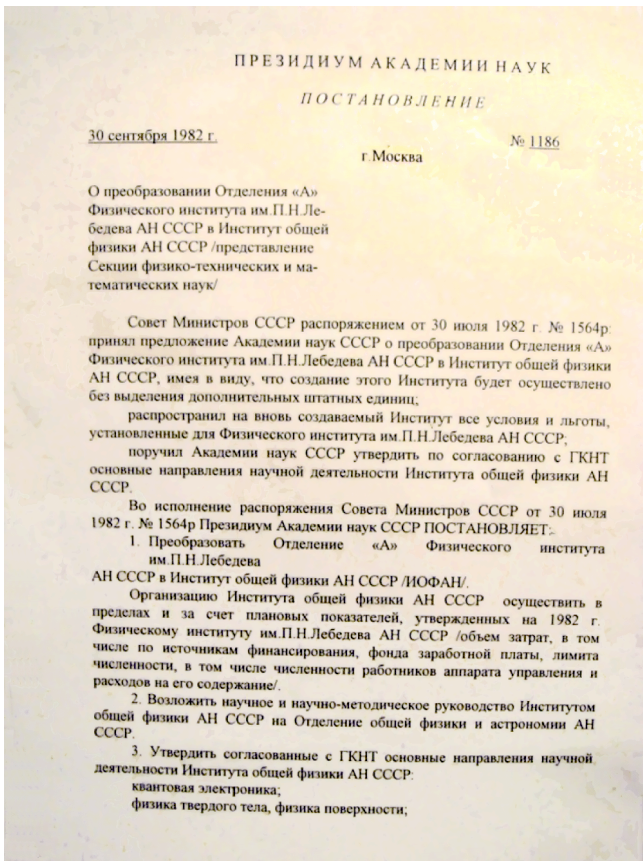
The Prokhorov General Physics Institute, Russian Academy of Sciences, has turned 40 years old. The institute was launched in accordance with a decree of the Presidium of the USSR Academy of Sciences dated September 30, 1982, and started as an independent organization already on June 1, 1983. It is from this date that the General Physics Institute of the Russian Academy of Sciences marks its modern history.

An organizer and first director of the institute was the Nobel Prize laureate in physics, Academician Alexander Mikhailovich Prokhorov. In 2002, the institute was named after him.

At the time of its creation, the institute was based on Department ‘A’ of the Lebedev Physical Institute, the USSR Academy of Sciences. Department ‘A’ comprised the Laboratory of Oscillations, the Laboratory of Plasma Physics, and the Laboratory of Solid State Physics. These divisions defined the structure and research fields of the new institute.



Academician A M Prokhorov



Main building of the General Physics Institute,
Russian Academy of Sciences



Academician of the Russian Academy of Sciences Ivan Aleksandrovich Shcherbakov served as Director of the General Physics Institute of the Russian Academy of Sciences from 1998 to 2018 and currently is the scientific director of the institute.



Monument to Academician A M Prokhorov at the intersection of Leninskii and Universitetskii avenues in Moscow.



Prokhorov's Nobel medal

The history of the General Physics Institute is inextricably linked with the famous Laboratory of Oscillations of the Lebedev Physical Institute, formed back in 1934 (originally as the Oscillation Department). Throughout the years, the laboratory was headed by the most prominent scientists of this country: academicians Nikolai Dmitrievich Papaleksi from 1934 to 1947, Mikhail Aleksandrovich Leontovich from 1947 to 1954, and Prokhorov from 1954 to 1998. It is to these outstanding scientists that the Laboratory of Oscillations owes its traditions and pivotal scientific discoveries. Academician Leonid Isaakovich Mandelshtam also took an active part in the scientific leadership of the Laboratory of Oscillations.

In 1964, staff members of the Laboratory of Oscillations (at that time still part of the Lebedev Physical Institute) Prokhorov and Nikolai Gennadievich Basov, together with Charles Townes, USA, were awarded the Nobel Prize in Physics for fundamental work in the field of quantum electronics, which led to the construction of oscillators and amplifiers based on the maser–laser principle. The spirit and traditions of the Laboratory of Oscillations were inherited by the newly created General Physics Institute.

Currently, the Prokhorov General Physics Institute of the Russian Academy of Sciences is a leading physical research institute in the Russian Federation. The institute employs a staff of almost 1000, including two academicians and three corresponding members of the Russian Academy of Sciences, 82 Doctors of Science, and 269 Candidates of Science (PhD). In 2020, the institute was transformed into a Federal Research Center, which, in addition to research units, includes three more branches and one separate structural unit.

The main areas of research pursued at the General Physics Institute extend to everything that relates to lasers. This

includes new types of lasers, new optical materials, active media, interactions of laser radiation with matter, fiber optics, and much more.

However, it is no coincidence that the institute is called the General Physics Institute. The institute successfully conducts work in the fields of radiophysics, plasma physics, acoustics, physics of condensed matter, low-temperature physics, physics of nanostructures, biophotonics, and many other areas.

The scientific results obtained at the General Physics Institute of the Russian Academy of Sciences have found their application in various sectors of industry and the economy in general. We have always been guided by institute founder Prokhorov's motto: science cannot be divided into fundamental and applied, and the results of fundamental research must ultimately find their way to applications.

The high significance of the achievements of the General Physics Institute is confirmed by the highest international and domestic scientific awards received by our staff over the past years. Many employees of the Institute have been awarded government awards of the USSR and state awards of the Russian Federation.

In this special issue of *Physics–Uspekhi*, dedicated to the 40th anniversary of the General Physics Institute of the Russian Academy of Sciences, reviews and articles are published that cover a number of subjects that have been most actively studied at the institute in recent years.

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