

Pavel Pavlovich Pashinin



The outstanding Russian scientist Pavel Pavlovich Pashinin, Corresponding Member of the Russian Academy of Science (RAS), was 70 on 1 May 2005.

After graduating from the Moscow Institute of Physics and Technology in 1958, Pavel Pavlovich began his scientific career as a post-graduate at the P.N. Lebedev Physics Institute of RAS. His first publications were devoted to the creation and investigation of active media for masers. Later, he actively studied the interaction of laser radiation with matter, laser plasma and performed investigations in the field of laser spectroscopy. He developed the first ruby ring laser and the first mode-locked picosecond-pulse ring laser. He carried out pioneering research on optical breakdown in gases, which led to the discovery of a whole range of physical phenomena such as an optical-detonation wave and a breakdown wave formed during optical discharge propagation, multiphoton ionisation of a gas by picosecond pulses, self-focusing of laser beams in gases in the pre-breakdown state, and stimulated Compton scattering of light in a laser spark plasma.

P.P. Pashinin discovered and analysed the high-intensity X-ray radiation emitted by a laser spark plasma, which was the first experimental confirmation of the possibility of achieving high temperatures in gases and stimulated the development of laser fusion research. P.P. Pashinin and his group developed a complex of unique laser devices (UMI-35, Kamerton, Sirius, etc.) for studying the processes occurring in laser plasma, and

worked out diagnostic techniques with record time and spatial resolutions. At present, P.P. Pashinin supervises the work aimed at manufacturing a Kamerton-T multi-terawatt femto-second laser at the A.M. Prokhorov General Physics Institute.

P.P. Pashinin has contributed significantly to the development of IR lasers: three-micron lasers, parametric coherent oscillators emitting in the 3–18- μm range, as well as waveguide and planar gas-discharge CO_2 lasers excited by rf and dc discharges. In the field of laser spectroscopy, his works on CARS spectroscopy in gases, laser polariton and hyper Raman scattering in crystals and films, as well as on saturation laser polarisation spectroscopy have been widely acclaimed.

Among the recent achievements of P.P. Pashinin are his studies of the laser plasma of highly charged heavy ions, a cycle of publications on laser generation of high-intensity shock waves used for studying thermophysical and mechanical properties of the state of matter under extremal conditions.

P.P. Pashinin pays considerable attention to the training of researchers (fourteen doctors of science and over thirty Ph.D. have defended their theses in the group led by him), as well as to the practical applications of the results of his fundamental investigations. He has participated in the development of laser techniques for applications in medicine, in particular in ophthalmology, dynamic laser phototherapy and lithotripsy.

P.P. Pashinin has published over 400 scientific works that are well known among the scientific community. Some new special developments of special techniques were based on a number of his scientific ideas. He is the winner of the State Award (1985) and the Award of the USSR Council of Ministers (1989). He was also awarded the Badge of Honour and many medals.

Professor Pavel Pavlovich Pashinin has contributed a lot towards the organisation of scientific activity. For several years, he worked as the Deputy Chairman of the Russian Foundation for Basic Research and Head of the Teaching and Research Centre of the A.M. Prokhorov General Physics Institute of RAS under the Integratsia programme. He has also supervised a number of programmes under the Ministry of Industry and Science, Presidium of RAS, and the Division of Physical Sciences of RAS. He is a member of several interdepartmental scientific councils of RAS, and specialised academic councils under the Supreme Attestation Commission, as well as the chief editor of the international journals *Laser Physics* and *Laser Physics Letters*. Over the last decades, he has served on the Organising and Program Committees of many large international and national conferences on quantum electronics.

P.P. Pashinin is one of the best representatives of the scientific school of the Nobel laureate Academician A.M. Prokhorov. A deep intuition, erudition and the ability to clearly visualise the scientific perspectives are the distinguishing features of this accomplished scientist.

Colleagues, students and friends of Pavel Pavlovich, as well as the Editorial Council, Editorial Board and the staff of *Quantum Electronics* heartily congratulate him on his jubilee and wish him sound health, happiness, domestic bliss and new scientific achievements.