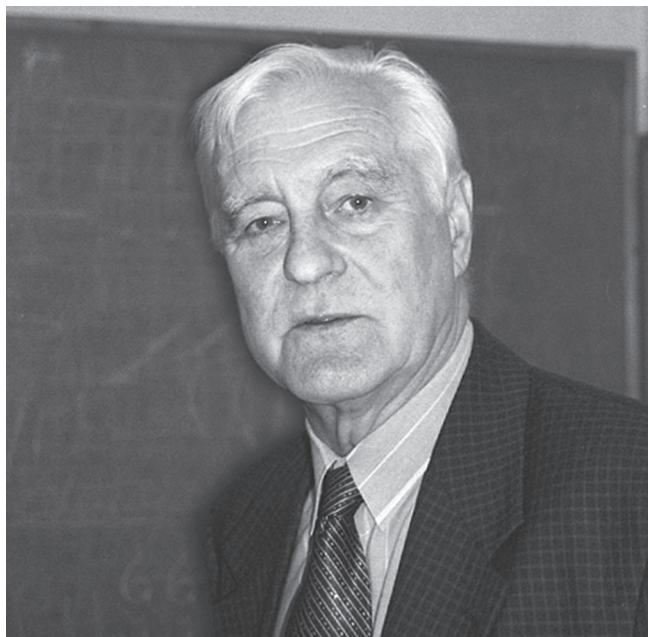


## Oleg Nikolaevich Krokhin



Academician Oleg Nikolaevich Krokhin, prominent physicist and organiser of science, laureate of Lenin and State Prizes, Editor-in-Chief of *Quantum Electronics* was 80 on 14 March 2012.

After graduating from the Department of Physics at Moscow State University in 1955, he began to work at a nuclear centre (nowadays, the All-Russian Research Institute of Technical Physics, Snezhinsk city), where he participated in very important nuclear safety research.

Having become a staff member of P.N. Lebedev Physics Institute (LPI) in 1959, Oleg Nikolaevich together with N.G. Basov and other scientists substantiated the possibility of amplification and generation of optical radiation by quantum systems, i.e., the possibility of creating lasers (1960). He performed basic studies on the relaxation of a degenerate electron gas in semiconductors, formulated criteria for producing the population inversion in semiconductors, and investigated the generation of optical radiation. The peak of these studies (together with N.G. Basov and Yu.M. Popov, 1961) was a priority proposal and substantiation of the possibility of creating an injection laser (Lenin Prize, 1964).

Together with N.G. Basov, Oleg Nikolaevich put forward the idea (1961) of thermonuclear fusion by heating a target with laser radiation. This proposal initiated the development of a new scientific and technical field – laser thermonuclear fusion (LTF), which is now one of the most major international programs. O.N. Krokhin laid the foundations of physics of interaction of intense laser radiation with strongly absorbing media and plasmas, proposed a record-high-energy photodissociation laser, pumped by explosion shock wave front radiation or by radiation of a high-power open electric-discharge, for special applications and LTF.

O.N. Krokhin supervised a large series of studies on interaction of laser radiation with matter (State Prize, 1981). These studies led to the development of special laser systems, including the equipment for imaging of fast processes with high temporal and spatial resolution, as well as of a set of methods, which are widely used at present in various scientific fields.

Oleg Nikolaevich was always interested in the problems of using laser radiation in a variety of applications. He participated (together with Yu.M. Pantsyrev) in the first investigations of the action of laser radiation on the stomach tissue, which resulted in the development of new methods for cessation of strong stomach hemorrhage using the endoscopic technique.

For several years under the supervision of O.N. Krokhin, the studies have been performed aimed at the development of ‘point’ sources of neutrons, X-rays, and UV radiation based on fast pinch discharges. As a result, for X-ray lithography a point soft X-ray source was fabricated, which has a high efficiency of conversion of the electric energy to radiation. Under the initiative of Oleg Nikolaevich, the methods for fabricating targets of a complicated structure for LTF were developed at LPI. At present, these targets are successfully used in leading scientific centres over the world. In the Russian Academy of Sciences, Oleg Nikolaevich supervises works on the ‘Coherent optical radiation of semiconductor compounds and structures’ program. For his studies on semiconductor lasers, Oleg Nikolaevich was awarded the Demidov Prize in 2005.

O.N. Krokhin is the head of the acknowledged scientific school in the field of quantum radiophysics and plasma physics. There are more than twenty doctors and candidates of sciences among his pupils. He is also a professor of the National Research Nuclear University ‘MEPhI’, scientific supervisor of the MEPhI Higher School of Physicists. For his great contribution to education of highly qualified specialists, Oleg Nikolaevich was awarded a Prize of the RF President in the field of education (2000). O.N. Krokhin actively participated in realisation of the Federal Target Program ‘State Support of Integration of Higher Education and Fundamental Science’ (RF President’s Prize in the field of education). Oleg Nikolaevich is the president of the ‘Physics and Education’ public association.

Apart from the ‘Quantum Electronics’ journal, O.N. Krokhin is the Editor-in-Chief of such journals as ‘Journal of Russian Laser Research’, ‘Physics in Higher Education’, ‘Short Communications on Physics’.

Almost all scientific activity of Oleg Nikolaevich is associated with P.N. Lebedev Physics Institute, RAS. He was Deputy Director from 1972 to 1979 and Director of this famous Institute from 1994 to 2004. O.N. Krokhin is the author of more than 250 scientific papers and three monographs. His scientific achievements are generally acknowledged. He was elected an Associate Member of RAS in 1991 and an Academician of RAS in 2000.

O.N. Krokhin was awarded the Order of the Red Banner of Labour (1971); the Badge of Honour (1976); the Order ‘For Merit for the Fatherland’, III class (1999); Commander Cross, II degree (Poland, 2001).

The scope of interests of Oleg Nikolaevich is not restricted by science only. He is a great amateur of fiction and historic literature and fine arts, a connoisseur of impressionism, and excellently draws himself. Oleg Nikolaevich is a devoted sport admirer. Being a student he played volleyball for the Youth Sports Association ‘Torpedo’ and Moscow State University, and later – for the LPI team for many years. He is still keen on mountain skiing. Oleg Nikolaevich possesses remarkable human qualities – decency, subtle humour, self-irony, kindness, sympathy.

Friends, colleagues, pupils, Editorial Council, Editorial Board, and Editorial Office of *Quantum Electronics* wish the dear hero of the day good health and further creative successes to the glory of the Russian science.