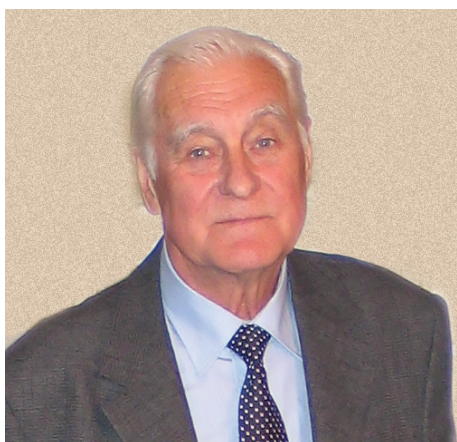


## On the ninetieth birthday of O.N. Krokhin



Academician Oleg Nikolaevich Krokhin, an eminent Russian physicist, turned 90 years old on 14 March.

In 1955, after graduating from the Faculty of Physics, Lomonosov Moscow State University, the young scientist started his career at the Siberian Nuclear Center (now the Zababakhin All-Russia Research Institute of Technical Physics, Snezhinsk), where he participated in research of vital importance to the national nuclear security. In 1959, Krokhin became a research fellow at the P.N. Lebedev Physics Institute (LPI), USSR Academy of Sciences, with which all his scientific activity was connected and where he was a director from 1994 till 2004.

In 1960, O.N. Krokhin together with N.G. Basov and Yu.M. Popov substantiated the possibility of light amplification and generation by quantum systems, i.e. the possibility of lasing. Oleg Nikolaevich is the author of fundamental works on the study of degenerate electron gas relaxation in semiconductors. He formulated criteria for the occurrence of inverse population in semiconductors, and investigated the processes of optical radiation generation. The result of these studies (carried in collaboration with N.G. Basov and Yu.M. Popov) was a priority proposal and demonstration of the possibility of creating injection lasers (1964 Lenin Prize).

In 1962, together with N.G. Basov, Oleg Nikolaevich put forward the idea of nuclear fusion via the laser heating of a target, opening a new research direction: laser fusion. Under the guidance of O.N. Krokhin, fundamental studies on laser–matter interaction processes were performed (1981 State Prize). Of great importance was his proposal to create a photodissociation laser pumped by an explosion shock wave or a high-power open electromagnetic discharge. Research in this area led to the development of a laser with record-breaking energy parameters for specialty engineering and laser fusion applications.

Oleg Nikolaevich is distinguished by deep scientific erudition, scientific courage, insight and focus on obtaining a fundamental result. He paid great attention to the use of lasers in

applied problems. Research on the creation of ‘point’ neutron, X-ray and UV sources based on fast-pinch discharges led to the development of a point soft X-ray source for lithography, with high electrical-to-optical conversion efficiency. On the initiative of O.N. Krokhin, researcher at LPI developed methods for the fabrication of complex-structured laser fusion targets.

Scientific achievements of Oleg Nikolaevich Krokhin are universally recognised by the scientific community. He was elected a corresponding member of RAS in 1991 and Academician in 2000. He was awarded the 2005 Demidov Prize and decorated with the 2010 N.G. Basov Gold Medal.

Academician O.N. Krokhin conducts large scientific and organizational work as a member of the Bureau of the General Physics Division of RAS, and as a chairman in the RAS Commission for the award of the N.G. Basov Gold Medal. He is the editor-in-chief of *Quantum Electronics*, *Journal of Russian Laser Research* and *Physics in Higher Education*. For many years O.N. Krokhin directed the programme of the Physical Sciences Department of RAS in the field of semiconductor lasers.

O.N. Krokhin is head of a renowned school of thought in the field of quantum radiophysics and plasma physics. There are more than thirty doctors and candidates of sciences among his pupils. Oleg Nikolaevich greatly contributed to the training of new generations of scientists and engineers, as well as to the development of physics education in Russia. For many years he has been lecturing at the National Research Nuclear University MEPhI, where he is the head of the department and is the scientific head of the Basov Higher School of Physicists. For his great contribution to the training of highly qualified researchers, he received the 2000 RF President’s Award in Education.

O.N. Krokhin was decorated with the Order of the Red Banner of Labour (1971), the Order of the Badge of Honour (1976) and the Order for Merit to the Fatherland 4th class (1999) and 3rd class (2008). He was also awarded the highest order of Poland: the 2nd class Commander’s Cross (2001).

The scope of interests of Oleg Nikolaevich is not restricted to science. He is a great reader of historical books, an expert in fine arts and a fervent admirer of impressionism. Moreover, he himself is excellent at drawing. Oleg Nikolaevich is a true sportsman: for many years he played volleyball for the LPI team and for the Torpedo Youth Sports Association and the Moscow State University team when he was a student. His fine human qualities are worthy of admiration: decency, kindness, responsiveness, ability to listen and understand the interlocutor, and fine sense of humour.

Friends, colleagues and pupils, as well as Editorial Council, Editorial Board and Editorial Staff of *Quantum Electronics* warmly congratulate the hero of the day and wish him many happy returns of the day, health and further creative success for the glory of Russian science.

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