

## In memory of Evgeny Mikhailovich Dianov



Academician Evgeny Mikhailovich Dianov, an eminent scientist in the fields of fibre optics, laser physics and optical materials research, the founder of the Fiber Optics Research Center (FORC), Russian Academy of Sciences (RAS), its director and scientific head for many years, passed away on 30 January, in his 83rd year, after a long, serious illness.

Dianov was born on 31 January 1936 in the village of Krasnoe, Tula oblast, in a teacher's family. In 1960, after graduating from the Faculty of Physics, M.V. Lomonosov Moscow State University, he started his career at the Laboratory of Vibrations, P.N. Lebedev Physical Institute, USSR Academy of Sciences (AS). After receiving candidate's degree in 1966, he continued his research under the mentorship of Academician A.M. Prokhorov, a Nobel laureate, who appreciated the young scientist's talent and diligence, as well as his vivid interest in quantum electronics, which was making rapid progress at the time.

Dianov's first important achievement was the development and industrial application of a neodymium-doped athermal laser glass, which ensured small laser beam divergence. For this work, Dianov and his collaborators from Vavilov State Optical Institute (GOI) and Lytkarino Optical Glass Factory were awarded the 1974 USSR State Prize.

At that time, fibre optics was emerging as a branch of quantum electronics. In 1972, through Prokhorov's suggestion Dianov took charge of research aimed at designing a process for the fabrication of silica-based optical fibres [in co-operation with the Institute of Chemistry of High-Purity Substances (ICHPS), USSR AS] and gaining insight into the physical properties of such fibres. Since then, Dianov has devoted all his talent and energy to fibre optics. The first domestic optical fibres corresponding to the world's level were produced as early as 1975. Later years saw the advent of radiation-hard, high-strength, active, photonic-crystal, hollow-core and other fibres, whose properties often surpassed the world's level. Dianov's work, much of which was performed in co-operation with ICHPS, gained worldwide recognition.

Dianov and his collaborators performed exhaustive research into the generation and propagation of solitons in optical fibre. Under his scientific guidance, highly efficient Raman fibre amplifiers and lasers were developed. Dianov's achievements include the development and characterisation of chalcogenide and polycrystalline silver halide fibres for the mid-IR spectral region. The results obtained in this area of research in co-operation with his colleagues from ICHPS and GOI were awarded the 1998 Russian Federation State Prize.

Dianov's last striking achievements include unique hollow-core fibres, in which there is essentially no interaction between propagating light and their glass cladding, and bismuth-doped optical fibres – a new type of active fibre. The bismuth-doped fibres were shown to enable efficient optical signal generation and amplification in a wide spectral range, from 1.15 to 1.8  $\mu\text{m}$ , including wavelengths where standard active fibres are inapplicable.

Dianov's scientific school is deservedly thought of as one of the world's best. His pupils include 2 corresponding members of RAS, 9 doctors and more than 70 candidates of sciences. Dianov's school alumni work at scientific and industrial institutions in Russia and all over the world.

In the last years of his life, he spent considerable time and effort organising and ensuring scientific follow-up to the mass production of optical fibre and fibre-optic sensors in Russia.

Dianov was elected a corresponding member of the USSR AS in 1987 and a full member of RAS in 1994. He was a member of the RAS Presidium from 2002 to 2013 and a member of the Bureau of the Chemistry and Materials Science Division, RAS, for many years. Dianov continuously headed FORC from its foundation in 1993 until 2015.

For his scientific achievements and science organisation activities, Dianov was honoured with many domestic and foreign prizes, titles and awards, including the Order for Merit to the Fatherland 4th class, the Order of the Badge of Honour, the Order of Friendship, two State Prizes, Vavilov Memorial Gold Medal (RAS), Popov Prize (USSR AS), a USSR AS/GDR AS joint prize and the John Tyndall Award (IEEE Photonics Society–Optical Society of America).

Dianov was a member of the Council for Innovations, State Duma; head of the All-Russia Conference on Fibre Optics; and a member of the editorial boards of many Russian and foreign scientific journals. His work determined the cutting edge of global research in fibre optics. Thanks to such people, our country retained and consolidated its great scientific power status.

The death of Dianov is an irreparable loss to his colleagues, his pupils, the FORC team and science, to which he devoted his entire life. Evgeny Mikhailovich Dianov will always be remembered in our hearts.

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