

## On the Eightieth Birthday of Evgeny Mikhailovich Dianov



Evgeny Mikhailovich Dianov, an eminent scientist in the fields of fibre optics, laser physics and optical materials research, doctor of physics and mathematics, professor and the founder of the Fiber Optics Research Center (FORC), Russian Academy of Sciences (RAS), will turn 80 years old on 31 January.

Dianov was born in the village of Krasnoe, Tula oblast, in a teacher's family. In 1960, after graduating from the Department of Physics, M.V. Lomonosov Moscow State University, he started his career at the Laboratory of Vibrations, P.N. Lebedev Physics 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 State Optical Institute (SOI) 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 low-loss silica-based optical fibres [in co-operation with the Institute of Chemistry of High-Purity Substances (ICHS), 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 and other fibres, whose properties often surpassed the world's level. Dianov's work, much of which has been performed in co-operation with ICHS, has gained worldwide recognition.

Dianov and his collaborators have performed exhaustive research into the generation and propagation of solitons in optical fibre. Under his scientific guidance, highly efficient Raman fibre amplifiers and lasers have been developed, capable of operating in a wide spectral range, from 0.92 to 2.2  $\mu\text{m}$ .

Dianov's recent work has culminated in a striking achievement: bismuth-doped optical fibre – a new type of active fibre. In 2005, he and his collaborators reported the world's first demonstration of lasing in this novel gain medium. As shown by his subsequent work, bismuth-doped fibre enables 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 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 ICHS and SOI were awarded the 1998 RF State Prize.

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 abroad.

The Web of Science database contains more than 900 Dianov's publications, and these are widely cited: his h-index is 44.

At present, he spends considerable time and effort organising the mass production of optical fibre and fibre-optic sensors in Russia and ensuring a scientific follow-up to it.

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

Dianov is 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. He participates in regular meetings of program committees for Russian and foreign conferences and often presents invited lectures. He is a member of the Optical Society of America, the Institute of Electrical and Electronics Engineers, the Materials Research Society and the American Ceramic Society.

Dianov was awarded the Order for Merit to the Fatherland 4th class, the Order of the Badge of Honour, the Order of Friendship, Soviet medals, Vavilov Memorial Gold Medal (RAS), Popov Prize (USSR AS), and a USSR AS/GDR AS joint prize.

We heartily congratulate Evgeny Mikhailovich on his anniversary and wish him robust health, happiness and new achievements for the benefit of Russian science.

**FORC team, colleagues and friends**