

PERSONALIA

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Tasoltan Tazretovich Basiev

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Professor Tasoltan Tazretovich Basiev, a prominent Russian scientist, deputy director of the Research Center of Laser Materials and Technologies at the General Physics Institute of the Russian Academy of Sciences, a member of the Editorial Board of Quantum Electronics, was 60 on 23 September 2007.

Tasoltan Tazretovich was born in Moscow. After graduating from the Moscow Energy Institute, he became a researcher at the sector of single crystals at the P.N. Lebedev Physics Institute, Academy of Sciences of USSR and actively participated in urgent studies in the fields of laser spectroscopy of solids and physics of laser crystals.

In 1977 T.T. Basiev defended a PhD thesis on 'Electronic energy transfer between rare-earth ions in laser matrices', continuing the research in this field beginning from his student years. From 1972 to 1984 Tasoltan Tazretovich came the way from a junior researcher to a head of a group working in the field of selective laser spectroscopy of solids and made the outstanding contribution in this field of solid-state physics. In 1984 he defended a doctoral dissertation on 'Selective laser spectroscopy of activated crystals and glasses', in which he analysed and interpreted a vast amount of unique experimental results.

The studies of T.T. Basiev played the leading role in the development of the manufacturing technology of colour-centre fluoride crystals for tunable lasers. As a result, large batches of laser crystals with a high radiation contrast and high lasing efficiency providing record-high laser parameters were fabricated. These investigations were awarded the Lenin Komsomol Prize in 1976 and the International Prize of the Academy of Sciences of USSR and Hungarian Academy of Sciences in the fields of solid-state physics and laser physics.

T.T. Basiev was the first to propose and develop the physicochemical methods for synthesis of new optical single crystals for lasers based on stimulated Raman scattering (SRS). The relation between the properties of SRS and the structure of complex anon and cation groups in crystals was revealed. Based on new Raman laser crystals with the record gain, a variety of picosecond and nanosecond Raman lasers emitting more than one joule in different spectral regions and providing peak powers of a few tens megawatts were developed.

Tasoltan Tazretovich took part in the development of physicochemical methods for synthesis of new materials for mid-IR lasers (3–5 μm). The subnanosize complexes of rare-earth ions coherently bound by a strong quadrupole–quadrupole interaction, which can be used as prototypes of quantum computational devices, were fabricated and studied. The phenomenon of cooperative nonradiative cross-relaxation was discovered. Nonlinear concentration dependences of the quantum yield of luminescence caused by multiparticle cooperative energy transfer and down-conversion were found.

T.T. Basiev is a member of the Russian Optical Society and the European Physical Society, an academician of the A.M. Prokhorov Academy of Engineering Sciences, a Fellow of the Optical Society of America, and an editor of Optical Materials journal.

T.T. Basiev is the author of 390 scientific publications, including 3 books, 36 reviews, and 21 patents.

Editorial Council, Editorial Board, and Editorial Office of Quantum Electronics congratulate Tasoltan Tazretovich on his birthday and wish him good health and further creative successes.

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