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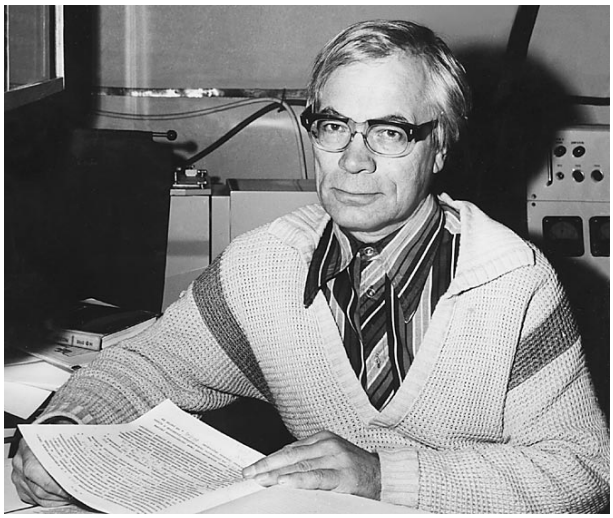
CHRONICLE

Obituary: Nikolai Sergeevich Andreev (April 27, 1930–June 4, 2002)



Nikolai Sergeevich Andreev, a famous Russian scientist, one of the seniormost staff members of the Institute of Silicate Chemistry, Russian Academy of Sciences, and scientific adviser of the Structural Physics Laboratory, suddenly passed away on June 4, 2002.

Andreev was born on April 27, 1930, in Pskov. After his graduation from the Faculty of Physics of the Leningrad State University in 1954, Andreev became a postgraduate student. His supervisor was E.A. Porai-Koshits, a pioneer and recognized leader in the field of glass structure. After completing his postgraduate research, Andreev worked at the State Optical Institute from 1957 to 1959 and, thereafter, at the Institute of Silicate Chemistry. He worked intensely until his last days in the fields of glass structure and the nature of the vitreous state.

The scientific interest of Nikolai Sergeevich in diverse problems of the vitreous state was stimulated by the outstanding Russian scientists Academician A.A. Lebedev and Professor E.A. Porai-Koshits. Even as a student and later as a research scholar, Andreev was actively involved in the scientific activity of the Structural Physics Laboratory created under the guidance of Porai-Koshits at the Institute of Silicate Chemistry. Andreev founded a new direction in the study of glass structure on the basis of the mutually complementary techniques of small-angle X-ray scattering and visible light scattering at ordinary angles. The very first results obtained using these techniques (anomalous light scattering and small-angle X-ray scattering by heat-treated sodium boron silicate glasses) proved to be extremely interesting and made it possible to establish unambiguously the inhomogeneous structure of the glasses under investigation; in turn, this provided a powerful impetus to investigation of phase separation phenomena in oxide glasses. These results and the results of subsequent investigations of structural transformations in glasses of other systems played a significant role in perfecting the theory of phase separation in glass-forming melts.

Among the many scientific achievements of Nikolai Sergeevich, the extensive study of the fluctuation structure of single-phase glasses and melts, which was carried out under his guidance and with his direct participation, occupies an important place. His publications devoted to the behavior of supercritical fluctuations in potassium silicate melts and the effect of stresses on the evolution of the fluctuation structure of glass-forming melts gained wide recognition. These and other unique experimental results obtained by Andreev, his collaborators, and disciples in the study of single-phase glasses have determined, to a considerable extent, the evolution of the theory of fluctuation phenomena in glass-forming melts.

The diversity of Andreev's scientific interests was not confined only to the application of the results of direct structural methods. New trends, including the molecular dynamics simulation of the atomic structure of glass-forming melts and glasses, were developed with his direct participation and support in the laboratory headed by him after Porai-Koshits resigned in 1982.

In recent years, Nikolai Sergeevich concentrated his attention on the investigation of hysteresis phenomena in the variation in the intensity of scattered electromagnetic radiation in the glass transition range and on the elucidation of the reasons for the existence of this effect; in this field, fundamentally new important results were obtained.

The scientific activity of Nikolai Sergeevich was not confined just to the framework of the laboratory headed by him. In the period from 1963 to 1966, Andreev was the scientific secretary of the Institute of Silicate Chemistry. He was also a member of the Scientific Council of the Institute of Silicate Chemistry, Russian Academy of Sciences, and a member of the Scientific Council of the Physics Department of St. Petersburg University. Since 1991, he had been a member of the Editorial Board of

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the journal *Fizika i Khimiya Stekla* (Physics and Chemistry of Glass).

A number of fundamental results (such as the discovery of metastable liquid–liquid phase separation) obtained by Andreev made him famous among Russian and foreign specialists. In 1991, Nikolai Sergeevich was awarded the I.V. Grebenshchikov Prize of the Presidium of the USSR Academy of Sciences for the series of publications "Inhomogeneous Structure of Inorganic Glass-Forming Materials." His profound contribution to the development of Russian science was marked by his being awarded the Medal For Services Rendered to the Motherland.

Nikolai Sergeevich was distinguished by exceptional modesty and benevolence, which were recognized by all those who had the privilege of working with him. His profound erudition, extending beyond purely scientific interests, had a very beneficial effect on his colleagues and students.

The blessed memory of this outstanding scientist and highly respected person will remain in the hearts of all those who worked with Nikolai Sergeevich and knew him personally.

Friends and colleagues