

Yurii Aleksandrovich Dunaev

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Yurii Aleksandrovich Dunaev, a prominent Soviet Physicist, a Lenin Prize Laureate, Professor, and laboratory chief at the A. F. Ioffe Physico-technical Institute of the USSR Academy of Sciences, died on June 25, 1974, after a grave illness.

Dunaev was born on June 3, 1914 into the family of a teacher in the village of Gruzino, Novgorod Oblast'. His first employment was at the "Bol'shevik" plant in Leningrad, but since 1932 he was inseparably associated with the Physico-technical Institute, where he advanced from laboratory assistant to director of one of the largest laboratories. A student of Academician Ioffe, he was a worthy representative of this leading Soviet Physical school. In a scientific career spanning more than forty years, Dunaev made a significant contribution to the development of many trends in physics and engineering.

Dunaev received his higher education at the Ul'yanov (Lenin) Leningrad Electrical Engineering Institute, successfully combining his studies with his work. His first scientific papers, which were devoted to semiconductor physics and semiconductor engineering, appeared during these years and those immediately following his graduation. The results that he obtained contributed to better understanding of the properties of cuprous oxide and sulfide rectifiers—the only semiconductor devices known at the time—and formed the basis for his candidate's dissertation.

The school of the experimenter through which Dunaev passed in this rapidly developing area of physics had a great influence in shaping him as a scientist. All his later studies bear witness to his brilliant intuition, his skill in finding the true solution while preserving the lucidity of the original idea, and his striving to develop technology out of the scientific advances that were most appropriate to the problems at hand.

During the Second World War, Dunaev took an active part in the development of thermionic devices for automatic radio-signal reception that were used successfully under combat conditions. Working with A. V. Stepanov, he performed important research on measurement of soil pressures under tracked vehicles that served as a basis during the war for the deployment of antitank minefields.

The year 1953 saw the beginning of a new stage in Dunaev's scientific activity: he set up a laboratory at the Physico-technical Institute (FTI) to study fundamental and applied problems of physical gasdynamics.

Dunaev's transfer to a scientific field that was totally new to him (as it was for the entire FTI) and the effectiveness of the research developed were evidence of his remarkable capabilities as a scientific organizer. The problem of supersonic flows and aerodynamic heating



of bodies was studied under his supervision and with his direct participation.

The coordinated studies of gasdynamic problems that were made in the laboratory led to the discovery of new physical phenomena, such as the Mach reflection anomaly of strong shock waves. Special note should be taken of a long series of studies initiated by Dunaev and carried out under his supervision to investigate shock-wave structure and relaxation ionization and dissociation when gases are heated by shock waves.

The continuing expansion of Dunaev's range of scientific interests and the appearance of new and urgent problems turned his attention to the need for development of work on the direct conversion of thermal to electrical energy by MHD and thermoemission methods. These studies, which were started in 1960, led to the development of the laboratory's 2000-kW (thermal) MHD gene-

rator (1961) and the country's first reactor-type thermo-emission converter whose output parameters and service life made it suitable for practical applications. Here Dunaev was responsible for the scientific supervision and coordination of the work, in which a whole group of scientific and planning organizations was involved. His activity in the USSR Academy of Sciences Scientific Council for the problem "Methods for the Direct Conversion of Thermal to Electrical Energy" contributed to the institution of research in this field on a nationwide scale.

Dunaev's truly modern approach to all problems of physics that attracted his attention helped attract his numerous students to science. Dunaev's response to

creative initiative on the part of his colleagues and the high level of erudition that these occasions brought out, combined with his exceptional modesty and kindness, had a profound influence on all of those who worked with him throughout his long and productive scientific career.

For his successes in solving scientific and engineering problems, Dunaev was awarded the Order of the Red Banner of Labor and two "Badge of Honor" orders, and was honored with a number of commemorative medals.

The glowing memory of the scientist and the man will forever be preserved in the hearts of all who knew him.

Translated by R. W. Bowers