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IN MEMORIAM

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## Aleksandr Aleksandrovich Rogachev

Aleksandr Aleksandrovich Rogachev, a distinguished physicist, Doctor of Physics and Mathematics, Professor, recipient of the Lenin and State Prizes of the USSR, the head of a laboratory at the Ioffe Physicotechnical Institute of the Russian Academy of Sciences, passed away on October 23, 1999.

A. A. Rogachev, widely renowned for his profound knowledge and scientific intuition and daring, contributed significantly to the physics of semiconductors by enriching it with a wealth of discoveries and fruitful ideas in the areas of many-electron systems, optoelectronics, and semiconductor technology.

A. A. Rogachev was born on December 18, 1937, in Leningrad. He lived through all the hard 1941–1944 years in the besieged city. From 1955 to 1960, he studied at the Physical faculty of the Leningrad State University. For forty years, from 1960 to his untimely death, he worked at the Ioffe Physicotechnical Institute of the Academy of Sciences of the USSR (from 1992 onwards, the Russian Academy of Sciences), in succession, as a senior technician, a postgraduate student, a junior researcher, a senior researcher, and as the head of a department; from 1974, he headed the Laboratory of Electronic Semiconductors. In 1967, the Scientific Council of the Ioffe Institute awarded A.A. Rogachev a degree of Doctor of Science in Physics and Mathematics for the work he submitted as his Candidate dissertation. From 1973 onwards, he was a full professor at the optoelectronics chair of the Leningrad Electrotechnical Institute.

The scope of his scientific interests was extremely broad, and the results achieved in his studies span diverse branches of the physics of semiconductors. Semiconductor lasers, infrared lasers based on type-II heterojunctions, exciton condensation and the electron–hole liquid, many-exciton complexes, many-electron phenomena at the insulator-metal transition, Auger transistors—these are the areas covered by research at the Ioffe Institute that were enriched by his personal achievements. Among A.A. Rogachev's most brilliant scientific contributions were the observation of exciton condensation in electron–hole liquid drops in germanium, which was made in 1964, and the discovery of stimulated emission in gallium arsenide, a work for which he, together with several colleagues, was awarded the Lenin Prize. Aleksandr Rogachev was the youngest scientist honored with this prize during the history of its existence. In 1986, he was the first to



devise, together with a group of co-workers, an efficient infrared laser based on a type-II heterojunction. In 1988, he was one of a group of physicists who received the USSR State Prize for a series of studies on many-exciton complexes in semiconductors.

A. A. Rogachev belonged to the category of scientists, never very large, which combine the rich talent of a theoretician with the skills of a true experimentalist. He was a harmoniously educated, brilliant, and fascinating person, who succeeded in generating a unique creative atmosphere in his laboratory and uniting quite a number of able scientists around him. He was not only an unquestionable leader in his team but a pioneer in establishing a whole new direction in the physics of many-electron systems as well. The scientific school founded by him presently occupies a well-deserved place in world science. Aleksandr Rogachev loved

music, had an intimate understanding of art, and was a sparkling and witty companion. Friends and colleagues often visited him just to talk about science and life in general. His intellect, charm, and power of logic were attractive to others. His unique contributions to science are well recognized by the world scientific community.

In appreciation of his scientific contributions, Aleksandr Rogachev was selected by the Editorial Board of the International Biographical Center (Cambridge, UK) as one of *2000 Outstanding Intellectuals of the 20th Century* and *2000 Outstanding Scientists of the 20th Century* and by the Board of Directors of the American Biographical Institute as one of the *1000 World Leaders of Influence*. He was also nominated by the ABI as the *1999 Man of the Year*, and by the IBC, as the *International Man of the Millennium*.

Aleksandr Rogachev will long be remembered by those who were privileged to be his friends and colleagues.

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