

## BORIS IVANOVICH STEPANOV

(on his 50th birthday)

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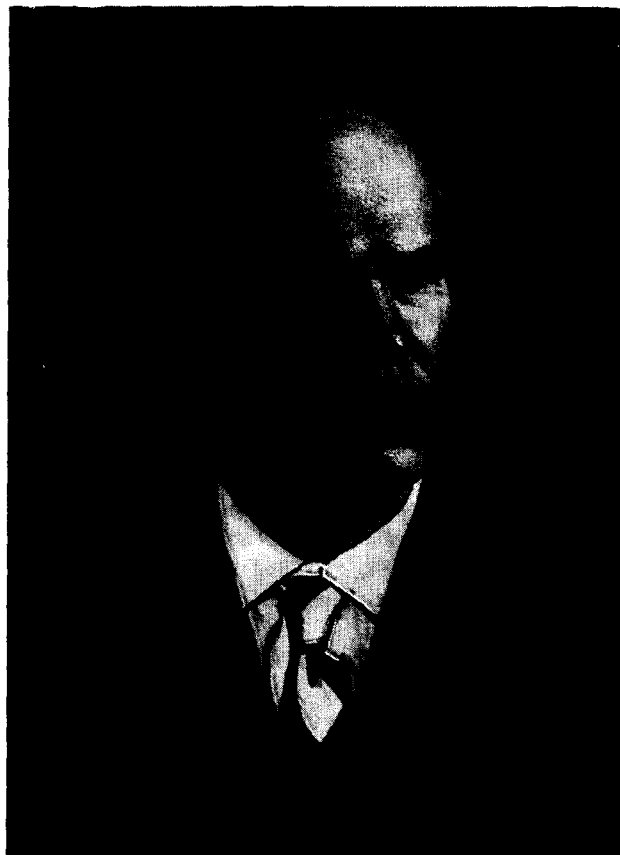
**B**ORIS Ivanovich Stepanov, Academician of the Belorussian Academy of Sciences, outstanding Soviet Scientist and winner of the State Prize, celebrated his 50th birthday on April 28, 1963.

Stepanov, the son of a worker, was born in Leningrad. His great interest in science was awakened during his study at the Leningrad University. He disclosed his inclination to theoretical research from the very start of his scientific activity. He defended successfully his Candidate's dissertation in 1939, after completing graduate work at the State Optical Institute. The first major cycle of his research, reported in his dissertation, was devoted to the application of the quantum mechanical theory of excitations to level interactions in diatomic molecules. In these papers he solved several complicated problems in the spectroscopy of diatomic molecules and interpreted a large amount of experimental material.

Stepanov's papers devoted to the theory of vibrations of polyatomic molecules are of great importance. He is one of the creators of the modern methods for the calculation of vibrations of molecules, and principal credit for drawing specific conclusions from these methods and for the interpretation of spectra of complex organic molecules belongs to him. All subsequent work done by the Soviet school of scientists engaged in the calculations of vibrations of molecules are based on his research. The work done in this field was reported by him in his doctoral dissertation, which was brilliantly defended in 1948, and in the two-volume monograph "Vibrations of Molecules," written in collaboration with M. V. Vol'kenshtein and M. A. El'yashevich, and awarded a State Prize in 1949.

Of great interest is Stepanov's research on the theory of the hydrogen bond, whereby he was able to explain from a unified point of view for the first time the main spectroscopic manifestations of the hydrogen bond.

In January 1953 Stepanov was elected an academician of the Belorussian Academy of Sciences and moved to Minsk, full of creative forces and bold ideas. Unsparring of efforts and energy, he did much to organize physics research in Belorussia. He initiated scientific research on a large scale and created a large scientific school. He is one of the organizers of the Physics Institute of the Belorussian Academy of Sciences, which he has headed since 1957.



Continuing the work begun with the study of luminescence of uranyl compounds, Stepanov arrived at a solution of the main problems in the luminescence of complex molecules. His basic research in this field has been reported in the original books "Luminescence of Complex Molecules" and "Introduction to the Theory of Luminescence."

Of principal significance is the work he did on the spectroscopy of negative radiation fluxes, the results of which are reported in the monograph "Principles of the Spectroscopy of Negative Light Fluxes."

Among Stepanov's traits are breadth of scientific interests, depth of theoretical analysis, lucid understanding of the experimental requirements, and ability to proceed rapidly to a solution of the most urgent scientific problems. These qualities were most brightly pronounced during the time when work on quantum electronics was organized in Minsk. Stepa-

nov's recent research is undoubtedly a major contribution to the theory of optical quantum generators and amplifiers.

Stepanov pays much attention to the relations between science and industry. Under his initiative and guidance, research was developed in Belorussia on infrared spectroscopy of cellulose, and methods of emission and molecular spectral analysis have been introduced in industrial enterprises.

Stepanov pays much attention to pedagogical activity. While working at the Leningrad University, at the Leningrad Institute of Precision Mechanics and Optics, and now in the Belorussian State University, he devoted all his efforts and knowledge to the training of scientists. His lectures are distinguished for deep content,

logical consistency, and clarity of exposition. They undoubtedly create a great interest among the students and stimulate them towards independent creative thinking.

The Soviet administration has highly praised the scientific and pedagogical activity of Stepanov, awarding him orders of "Red Banner of Labor," "Sign of Distinction," and medals.

We congratulate Stepanov with all our heart on his 50th birthday, wishing him health and great creative accomplishments.

Translated by J. G. Adashko