

Georgii Danilovich Malyuzhinets (Centennial)

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July 2, 2010, marked the centennial of Georgii Danilovich Malyuzhinets (1910–1969).

After finishing Moscow State University, Faculty of Theoretical Physics, Malyuzhinets spent his whole life working with theories of wave diffraction (acoustical, electromagnetic, and other physical nature). In his first study, which was the basis of his candidate's dissertation, he studied the sound-absorbing properties of perforated screens, which today are widely applied in construction. As a consequence, Malyuzhinets, developing this direction, took an active part in the elaboration of sound-absorbing materials for submarine building.

In his studies, Malyuzhinets gave a general mathematical formulation of a problem on the necessary har-

monic vibrations in a random area with proof of the theorem of the uniqueness of solution. He developed a method of latitudinal wave diffusion (proposed earlier by M.A. Leontovich and V.A. Fok) for solving diffraction problems. The method is based on an asymptotic representation of a wave field in ray coordinates with the application of a parabolic equation.

It is commonly believed that the fundamental results summed up in his doctoral dissertation represent his main achievement. He successfully defended this dissertation at the Lebedev Physics Institute in 1951. In this work, he generalized the method of reflections to the case of a wedge-shaped area with impedance boundary conditions and developed a general theory of Sommerfeld integrals. This is known as the Sommerfeld–Malyuzhinets method, and it has opened the effective possibility of solving new diffraction problems in acoustics, electrodynamics, and hydrodynamics, and it is widely used in practice.

In the last years of his life, Malyuzhinets constructed the theory of active systems of wave field damping and developed a structure for such a system as applied to hydroacoustic problems.

Malyuzhinets worked the last 15 years of his life at the Acoustical Institute, where he created a scientific school. The results obtained under his guidance served as the basis for a considerable number of candidate and doctoral dissertations.

Along with his scientific activity, Malyuzhinets was also involved in teaching and administration. So, from 1954 to 1960, he headed the acoustics department of the Moscow Physical–Technical Institute. Then, until his death, he occupied the position of professor of this department. From 1957 to 1965, he was the chairman of the diffraction section of the USSR Academy of Sciences Council on Acoustics. In this timeframe, he organized All-Russia symposia on wave diffraction (Odessa, 1960; Gorky, 1962; and Tbilisi, 1964), which later became a tradition.

Georgii Danilovich Malyuzhinets was a very sociable and sympathetic person, always ready to assist in solving both scientific and everyday problems. So will he remain forever in the memories of his colleagues and students.

Translated by A. Carpenter