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(b.Kazan, Russia, 20 October 1865; d. Moscow, U.S.S.R., 6 March 1944)

*mechanics, mathematics.*

Kotelnikov was the son of P. I. Kotelnikov, a colleague of Lobachevsky, and the only one to publicly praise Lobachevsky's discoveries in geometry during the latter's lifetime. In 1884, upon graduation from Kazan University, Kotelnikov taught mathematics at a Gymnasium in Kazan. Later he was accepted by the department of mechanics of Kazan University in order to prepare for the teaching profession. He began his teaching career at the university in 1893, and in 1896 he defended his master's dissertation, "Vintovoe ischislenie i nekotorye primeneniya ego k geometrii i mekhanike" ("The Cross-Product Calculus and Certain of Its Applications in Geometry and Mechanics"). Kotelnikov's calculus is a generalization of the vector calculus, describing force moments in statics and torques in kinematics. In his many years of teaching theoretical mechanics, Kotelnikov was an advocate of vector methods.

In 1899 Kotelnikov defended his doctoral dissertation, "Proektivnaya teoriya vektorov" ("The Projective Theory of Vectors"), for which he simultaneously received the doctorate in pure mathematics and the doctorate in applied mathematics. Kotelnikov's projective theory of vectors is a further generalization of the vector calculus to the non-Euclidean spaces of Lobachevsky and Riemann and the application of this calculus to mechanics in non-Euclidean spaces.

Kotelnikov served as professor and head of the department of pure mathematics at both Kiev (1899-1904) and Kazan (1904-1914). He headed the department of theoretical mechanics at Kiev Polytechnical Institute (1914-1924) and at the Bauman Technical College in Moscow (1924-1944).

Among his many works, special mention must be made of his paper "Printsip otноситelnosti i geometriya Lobachevskogo" ("The Principle of Relativity and Lobachevsky's Geometry"), on the relationship between physics and geometry, and "Teoriya vektorov i kompleksnye chisla" ("The Theory of Vectors and Complex Numbers"), in which generalizations of the vector calculus and questions of non-Euclidean mechanics are again examined.

His papers on the theory of quaternions and complex numbers in application to geometry and mechanics are of considerable significance.

Kotelnikov edited and annotated the complete works of both Zhukovsky and Lobachevsky.

In 1934 Kotelnikov was named an Honored Scientist and Technologist of the R.S.F.S.R. In 1943 he was awarded the State Prize of the U.S.S.R.

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II. Secondary Literature. See A. T. Grigorian, *Ocherki istorii mekhanki v Rossi* ("Essays on the History of Mechanics in Russia"; Moscow, 1961); and B. A. Rosenfeld, "Aleksandr Petrovich Kotelnikov," in *Istoriko-mate. maticheskie issledovania*, IX (Moscow, 1956).

A. T. Grigorian