Krylov, Nikolai Mitrofanovich | Encyclopedia.com

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(*b*. St. Petersburg, Russia, 29 November 1879; *d*. Moscoe, U.S.S.R., 11 May 1955)

mathematics.

N. M. Krylov graduated from the St. Petersburg Institute of Mines in 1902. From 1912 to 1917 he was a professor there, and then from 1917 to 1922 he was a professor at Crimea University. In 1922 he was chosen a member of the Academy of Sciences of the Ukrainian S.S.R., and was appointed chairman of the mathematical physics department. In 1928 Krylov was elected an associate member of the Academy of Sciences of the U.S.S.R.; a year later he became a member. The rank of honored scientist of the Ukrainian S.S.R. was conferred on him in 1939.

Krylov's works relate mainly to problems of the theory of interpolation, of approximate integration of differential equations (applicable in mathematical physics), and of nonlinear mechanics. In his study on approximate integration, Krylov obtained extremely effective formulas for the evaluation of error in a field in which, prior to this work, one was limited either to proofs of existence or, at best, to proofs of the convergence of the method of approximation. Using the proof of Ritz's method of convergence, Krylov was the first to study—with the aid of the theory of infinite-oirder determinants—the general case of an arbitrary quadratic form standing under the variable integral sign. By using Ritz's methoid itself, he investigated the creation of more general methods which would be applicable to both the proof of the existence of a solution and the actual construction of the solution.

In 1932 Krylov began a study of actual problems of nonlinear oscillatory processes; in this work he succeeded in laying the foundation of nonlinear mechanics.

Krylov's work received wide application in many fields of science and technology. He published some 200 papers in mathematical analysis and mathematical physics.

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