

Linnik, Iurii Vladimirovich | Encyclopedia.com

Complete Dictionary of Scientific Biography COPYRIGHT 2008 Charles Scribner's Sons
5-6 minutes

(*b.* Belaia Tserkov', Ukraine, Russia, 24 January 1915; *d.* Leningrad, U.S.S.R., 30 June 1972)

mathematics.

Linnik's parents, Vladimir Pavlovitch Linnik and Maria Abramovna Yakerina, were schoolteachers. His father later became a famous scientist in the field of optics and a member of the U.S.S.R. Academy of Sciences. After graduation from [secondary school](#) in 1931, Linnik, having worked for a year as a laboratory assistant, entered Leningrad University, where he studied theoretical physics and mathematics. He graduated from the university in 1938 and received the doctorate in mathematics in 1940, joining the staff of the Leningrad branch of the V. A. Steklov Institute of Mathematics of the U.S.S.R. Academy of Sciences. From 1944 he was simultaneously a professor in the Mathematics Department of Leningrad University. Linnik organized the chair of probability theory and mathematical statistics and founded the Leningrad school of probability and statistics.

Linnik's principal fields of endeavor were [number theory](#), probability theory, and mathematical statistics. A characteristic feature of his work was the use of very advanced analytical techniques. His early works were devoted to analytic [number theory](#). He began with the problem of the representation of an integer by positive ternary quadratic forms. Linnik next developed a powerful new method of investigating similar problems, the so-called ergodic method in number theory. A short paper (1941) served as a beginning of another powerful method now known as the large sieve method. In the 1950's Linnik developed a new strong method of analytic number theory. This method made it possible to solve some problems of additive number theory that cannot be treated by earlier methods. This method, which also uses some ideas of probability theory, is known as the dispersion method in number theory.

In the late 1940's Linnik began to work in probability theory and statistics. He immediately became famous because of his papers on probability limit theorems. Most important here was his work on probability of large deviations, where he found a new understanding of the problem. In the 1950's Linnik advanced the arithmetic of probability distributions, which had ceased to develop at the end of the 1930's. He did very important research in mathematical statistics and was one of the first to use the powerful analytical apparatus of the modern function theory for the solution of statistical problems. In a sense he created analytical statistics. He solved such difficult problems of statistics and characterization problems, the Behrens-Fisher problem, and the minimax property of the Hotelling T^2 test. Linnik was elected a member of the U.S.S.R. Academy of Sciences in 1964. He was also a member of the Swedish Academy and of many other societies and held an honorary doctorate from the University of Paris. For many years he was president of the Leningrad Mathematical Society.

BIBLIOGRAPHY

I. Original Works. Works by Linnik that are available in English are *Method of Least Squares and Principles of the Theory of Observations*, Regina C. Erlandt, trans., N. L. Johnson, ed. ([New York](#), 1961); *The Dispersion Method in Binary Additive Problems*, S. Schur, trans. (Providence, R. I., 1963); *The Decomposition of Probability Distributions*, S. J. Taylor, ed. ([New York](#), 1964); *Elementary Methods in Analytic Number Theory*. A. Feinstein, trans., rev. and ed. by L. J. Mordell (Chicago, 1965), written with A. Gelfond; "Characterization of Tests of the Bartlett-Schaffé Type" and "On the Construction of Optimal . . . Solutions of the Behrens-Fisher Problem," in *Articles on Mathematical Statistics and the theory of Probability*, proceedings of the Steklov Institute of Mathematics no. 79 (1966); *Ergodic Properties of Algebraic Fields*. M. S. Keane, trans. (New York, 1968); *Statistical problems with Nuisance Parameters* (Providence, R. I., 1968); *Independent and Stationary Sequences of Random Variables*, J. F. C. Kingman, ed. (Groningen, 1971), written with I. A. Ibragimov; "Nonlinear Statistics and Random Linear Forms," written with A. A. Zinger, and "Gamma Distribution and Partial Sufficiency of Polynomials," written with A. L. Ruhin and S. I. Strel'ic, in *Theoretical problems in Mathematical Statistics*. Proceedings of the Steklov Institute of Mathematics no. III (1972); *Characterization Problems in Mathematical Statistics*. B. Ramachandran, trans. (New York, 1973), written with A. M. Kagan and C. Radhakrishna Rao; and *Decomposition of Random Variables and Vectors*, Judah Rosenblatt, ed. (Providence, R. I., 1977), written with I. V. Ostrovskii.

II. Secondary Literature. Bibliographies are in *Uspekhi matematicheskikh nauk* **20**, no. 2 (1965), 229–236, and **28**, no. 2 (1973), 210–213

I. A. Ibragimov