Patrick Billingsley

November 2001

Personal   Born May 3, 1925 Sioux Falls, South Dakota

Education   B.S. (Engineering), U.S. Naval Academy, 1948.
M.A. (Mathematics), Princeton, 1952.
Ph.D. (Mathematics), Princeton, 1955.

Professional Career

Active Duty, U.S. Navy, 1948-57.

NSF Postdoctoral Fellow in Mathematics, Princeton, 1957-58.

Assistant Professor of Statistics, University of Chicago, 1958-1962.

Associate Professor of Statistics and Mathematics, University of Chicago, 1962-67.

Professor of Statistics and Mathematics, University of Chicago, 1967- .

Visiting Professor at the University of Copenhagen and Fullbright Fellow, 1964-65.

Visiting Professor at the University of Cambridge and Guggenheim Fellow, 1971-72.

Member of the Council of the Institute of Mathematical Statistics, 1969-71.

Member-at-large, National Research Council in the Division of Mathematical Sciences, 1973-76; member of the Executive Committee, 1973-75.

Fellow of the Institute of Mathematical Statistics; member of the American Mathematical Society and the Mathematical Association of America.

Recipient in 1974 of a Lester R. Ford award by the Mathematical Association of America for mathematical exposition.

Ph.D. students: Herbert T. David, Ishay Weissman (statistics), Bruce E. Trumbo, Miron Straf, R.N. Bhattacharya, Richard Gundy, Susan Shott (probability), Alvaro Gonzolez Villalobos, Coborn Ward, David Sze, William A. Dembski (mathematics).

Member, American Academy of Arts and Sciences

Editor, Annals of Probability, 1976-79.

President, Institute of Mathematical Statistics, 1980-81.

National Sigma Xi lecturer, 1980-82.

Chairman, Department of Statistics, 1980-83.

President, Institute of Mathematical Statistics, 1983.

Publications

[1]   The invariance principle for dependent random variables. *Trans. Amer. Math. Soc.*, **83** (1956), 250-68. MR 19, p. 891.

[2]   Asymptotic distributions of two goodness of fit criteria. *Ann. Math. Statist.*, **27** (1956), 1123-29. MR 18, p. 607.

[3]   Hausdorff dimension in probability theory. *Ill. J. Math.*, **4** (1960), 1987-209, MR 24A, no. A1750.

[4]   Hausdorff dimension in probability theory II. *Ill. J. Math.*, **5** (1961), 291-298. MR 24A, no. A1750.

[5]   Statistical methods in Markov chains. *Ann. Math. Statist.*, **32** (1961), 12-40. MR 23A, no. A747.

[6]   On the coding theorem for the noiseless channel. *Ann.Math. Statist.*, **32** (1961), 594-601. MR 23B, no. B2095.

[7]   The Lindeberg-Levy theorem for martingales. *Proc. Amer. Math. Soc.*, **12** (1961), 788-792. MR 23A, no. A4165.

[8]   Limit theorems for randomly selected partial sums. *Ann. Math. Statist.*, **33** (1962), 85-92. MR 25, no. 594.

[9]   An application of Prohorov's theorem to probabilistic number theory. *Ill. J. Math.*, **8** (1964), 697-704. MR 30, no. 1996.

[10]   Asymptotic distribution for the coupon collector's problem. *Ann. Math. Statist*, **36** (1965), 1835-1839. MR 31, no. 1996.

[11]   Convergence of types in k-space. *Zeitschrift für Wahrscheinlichkeitstheorie u. verw. Gebiete*, **5** (1966), 175-179. MR 3, no. 6665.

[12]   Uniformity in weak convergence. *Zeitschrift für Wahrscheinlichkeitstheorie u. verw. Gebiete*, **7** (1967), 1-16. MR 35, no. 326. (With F. Topsœ).

[13]   Markov chains. *International Encyclopedia of the Social Sciences*. New York: The Macmillan Company and the Free Press, 1968, Vol. 9, 581-585.

[14]   On the central limit theorem for the prime divisor function. *Amer. Math. Monthly*, **76** (l969), 132-139. MR 39, no. 3555.

[15]   Maxima of partial sums. *Proceedings of the International Symposium on Probability and Information Theory*, Macmaster University, April 4 and 5, 1968.

[16]   Weak convergence of measures: Applications in probability, *Regional Conference Series in Mathematics*. SIAM. Philadelphia (1971). MR 46, no. 10031.

[17]   On the distribution of large prime divisors. *Periodica Mathematica Hungarica*, **2** (1972), 283-289. MR 49, no. 243.

[18]   Prime numbers and Brownian motion. *Amer. Math. Monthly*, **80** (1973), 1099-115. MR 49, no. 9883. (Translated into Polish.)

[19]   Number theory, probabilistic. *Encyclopedia Britannica*, 15th edition, 1974, vol. 13, 377-380.

[20]   A note on separable stochastic processes. *Ann. Prob*., **2** (1974), 476-479.

[21]   Conditional distributions and tightness. *Ann. Prob*., **2** (1974), 480-485. MR 51, no. 4337.

[22]   The probability theory of additive arithmetic functions. *Ann. Prob*., **2** (1974), 749-791, MR 57, no. 5938.

[23]   Hausdorff dimension of some continued-fraction sets. *Zeitschrift für Wahrscheinlichkeitstheorie u. verw. Gebiete*, **31** (1975), 163-173. (With I. Henningsen.) MR 51, no. 5535.

[24]   The singular function of bold play. *American Scientist*, **71** (1983), 392-397.

[25]   Hausdorff dimension: self-similarity and independent processes; cross-similarity and Markov processes. *Statistics and Probability: A Raghu Raj Bahadur Festschrift* (1993), 97-134.

[26]   The origins of Skorokhod's topology. With Michael Wichura. To appear in the *Festschrift for A. V. Skorokhod*.

Books

[1]   Statistical Inference for Markov Processes. (Chicago: University of Chicago Statistical Research Monographs, University of Chicago Press, Institute of Mathematical Statistics, 1961). MR 23, no. A746.

[2]   Ergodic Theory and Information. (New York: John Wiley and Sons, 1965). MR 33, no. 254. (Translated into Russian and Japanese.)

[3]   Convergence of Probability Measures. (New York: John Wiley and Sons, 1968). MR 38, no. 1718. (Translated into Russian.)

[4]   The Elements of Statistical Inference. Sixth edition. (Boston: Allyn and Bacon, 1986). (With David L. Huntsberger).

[5]   Probability and Measure. Second edition. (New York: John Wiley and Sons, 1986). MR 80h:60001. (Translated into Polish.)

Lecture Series

Special Invited Paper, "Statistical methods in Markov chains," August 23, 1960, to the Institute of Mathematical Statistics.

Seven lectures on "Information Theory and Ergodic Theory," delivered at the London Mathematical Society's Instructional Conference on Mathematical Probability, Durham, March 28 to April 11, 1963.

Lectures on topology and function theory in Madras, India, July 1966.

Seven Lectures on "Weak Convergence of Probability Measures," delivered at the Edinburgh Mathematical Society's quadrennial colloquium at St. Andrew's University, July 10 to July 20, 1968.

Ten lectures on "Topics in Weak Convergence," the subject of a National Science Foundation Conference in the Mathematical Sciences held at the University of Iowa, August 31 to September 4, 1970.

Address on "Some Probability Results Connected with Diophantine Approximation," delivered to the American Mathematical Society by invitation of the Committee to Select Hour Speakers for Summer and Annual Meetings. August 27, 1970.

An advanced lecture course on weak convergence in Sweden, June 1972.

The Cambridge University 1972 Rouse Ball Lecture, "Prime Numbers and Brownian Motion", April 25, 1972.

The 1973 Wald Lectures of the Institute of Mathematical Statistics: "The Probability Theory of Additive Arithmetic Functions."

Probability course, Cortona, Italy, 1989, 1995.

Brownian motion course, Milan, Italy, 1990.

Probability course, Perugia, Italy, 1991, 1992, 1993.

Limit theory course, Rhemes Notre Dame, Italy 1994.