

DONALD L. BURKHOLDER

Department of Mathematics
University of Illinois
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Employment at the University of Illinois:

Professor in the Center for Advanced Study, 1978-1998; Emeritus, 1998--
Professor of Mathematics, 1964-1998; Emeritus, 1998--
Associate Professor, 1960-64
Assistant Professor, 1955-60

Temporary positions and research visits of several weeks or longer:

Stanford University, summer, 1961
University of California, Berkeley, sabbatical, 1961-62
Hebrew University, Jerusalem, January and February, 1969
Westfield College, University of London, sabbatical, 1969-70
Mittag-Leffler Institute, Sweden, June and July, 1971
Rutgers University, Visiting Professor, 1972-73
University of Paris, Orsay, Professeur d'Échange, July, 1975
University of Texas, November, 1981
Mittag-Leffler Institute, September and October, 1982
Institut des Hautes Études Scientifiques, April, 1986
University of Edinburgh, May, 1986
Universidad Autonoma de Madrid, June, 1986
Tel Aviv University, November and December, 1989
University of New South Wales, July and August, 1991

Some invited lectures and series of lectures:

Invited Lecture, International Congress of Mathematicians, 1970
Wald Lectures, Institute of Mathematical Statistics, 1971
Hour Address, American Mathematical Society, 1975
NSF-CBMS Lectures, Cleveland, 1981
CIME Lectures, Varenna (Como), Italy, 1985
Mordell Lecture, Cambridge University, 1986

Hour Address, Canadian Mathematical Society, 1987
Zygmund Lectures, University of Chicago, 1988
Distinguished Lectures, Indiana University, 1988
Saint-Flour Lectures, France, 1989
Invited lectures and series of lectures given in England, France, Germany,
Switzerland, Israel, Denmark, Sweden, Poland, Hungary, Japan, Singapore,
Canada, Scotland, Spain, Australia, Italy, Austria, and the United States,
approximately three hundred altogether

Some other honors and offices:

President, Institute of Mathematical Statistics, 1975-76
Editor, Annals of Mathematical Statistics, 1964-67
Associate editor, Transactions of the American Mathematical Society, 1983-85
A consulting editor, Proceedings of the Edinburgh Mathematical Society, 1990-1993
An advisory editor, Electronic J. of Probability & Communications in Probability, 1999--
Social Science Research Council Fellow, 1953-54
Fellow, Institute of Mathematical Statistics, 1963--
Member of the Board of Trustees of the Mathematical Sciences
Research Institute, Berkeley, 1981-84
Member of the Advisory Committee of the Mathematical Sciences Section,
National Science Foundation, 1981-84
Member of the Board of Governors of the Institute for Mathematics and Its
Applications, University of Minnesota, 1983-85, Chairman, 1985
Member of the Scientific Advisory Committee, MSRI, 1984-87
Member of the Council of the American Mathematical Society, 1981-85
Beckman Research Award of the University of Illinois Research Board, 1984
NSF Creativity Extension Award, 1987
Fellow of the American Academy of Arts and Sciences, 1992--
Member of the National Academy of Sciences, 1992--

Personal and educational data:

Born near Octavia, Nebraska, 19 January 1927
Married Jean Annette Fox, 17 June 1950
Our children: Kathleen (1953-1981), Peter, William
BA (Sociology) 1950, Earlham College
MS (Sociology) 1953, University of Wisconsin
PhD (Mathematical Statistics) 1955, University of North Carolina

DOCTORAL STUDENTS

Donald L. Burkholder

	Year PhD Awarded	First Position
Roger Farrell	1959	Cornell University
Morris Katz	1959	Wayne University
Rajinder Singh	1960	University of Saskatchewan
Gus Haggstrom	1964	University of Chicago
Ata Al-Hussaini	1964	University of Alberta
P. Warwick Millar	1967	University of California, Berkeley
Burgess Davis	1968	Purdue University
William Barlow	1971	Purdue University, Hammond
Ross Kindermann	1978	University of Nebraska
Terry McConnell	1981	Cornell University
Kwok-Pui Choi	1987	National University of Singapore
Gang Wang	1989	Purdue University
Jinsik Mok Lee	1992	Sungwha University, Korea
William Hammack	1994	University of British Columbia
Changsun Choi	1995	Korea Adv. Inst. of Sci. & Tech.
Robert Bauer	1997	Inst. for Advanced Study, Ga.Tech.
Jenny Steichen	2000	IBM, Yorktown Heights, NY

DONALD L. BURKHOLDER: PUBLICATIONS

1. *On a class of stochastic approximation processes*, Ann. Math. Statist. **27** (1956), 1044–1059.
2. *On the existence of a best approximation of one distribution function by another of a given type*, Ann. Math. Statist. **30** (1959), 738–742.
3. *Effect on the minimal complete class of tests of changes in the testing problem*, Ann. Math. Statist. **31** (1960), 325–331.
4. *Iterates of conditional expectation operators*, with Y. S. Chow, Proc. Amer. Math. Soc. **12** (1961), 490–495.
5. *Sufficiency in the undominated case*, Ann. Math. Statist. **32** (1961), 1191–1200.
6. *Semi-Gaussian subspaces*, Trans. Amer. Math. Soc. **104** (1962), 123–131.
7. *On the order structure of the set of sufficient subfields*, Ann. Math. Statist. **33** (1962), 596–599.
8. *Successive conditional expectations of an integrable function*, Ann. Math. Statist. **33** (1962), 887–893.
9. *Optimum properties and admissibility of sequential tests*, with R. A. Wijsman, Ann. Math. Statist. **34** (1963), 1–17.
10. *Maximal inequalities as necessary conditions for almost everywhere convergence*, Z. Wahrscheinlichkeitstheorie und Verw. Gebiete **3** (1964), 75–88.
11. *Martingale transforms*, Ann. Math. Statist. **37** (1966), 1494–1504.
12. *Point estimation*, International Encyclopedia of the Social Sciences **5** (1968), 142–150.
13. *Independent sequences with the Stein property*, Ann. Math. Statist. **39** (1968), 1282–1288.
14. *Extrapolation and interpolation of quasi-linear operators on martingales*, with R. F. Gundy, Acta Math. **124** (1970), 249–304.
15. *Martingale inequalities*, Lecture Notes in Mathematics **190** (1971), 1–8.
16. *A maximal function characterization of the class H^p* , with R. F. Gundy and M. L. Silverstein, Trans. Amer. Math. Soc. **157** (1971), 137–153.
17. *Inequalities for operators on martingales*, Proc. International Congress of Mathematicians (Nice, France, 1970) **2** (1971), 551–557.
18. *Integral inequalities for convex functions of operators on martingales*, with B. J. Davis and R. F. Gundy, Proc. Sixth Berkeley Symp. Math. Statist. and Prob. **2** (1972), 223–240.
19. *Distribution function inequalities for the area integral*, with R. F. Gundy, Studia Math. **44** (1972), 527–544.
20. *Distribution function inequalities for martingales*, Ann. Probab. **1** (1973), 19–42.
21. *Discussion of J. F. C. Kingman's paper: Subadditive ergodic theory*, Ann. Probab. **1** (1973), 900–902.
22. *Boundary behavior of harmonic functions in a half-space and Brownian motion*, with R. F. Gundy, Ann. Inst. Fourier (Grenoble) **23** (1973), 195–212.
23. *One-sided maximal functions and H^p* , J. Funct. Anal. **18** (1975), 429–454.
24. *H^p spaces and exit times of Brownian motion*, Bull. Amer. Math. Soc. **81** (1975), 556–558.
25. *Harmonic analysis and probability*, Studies in Math. **13** (1976), 136–149.

26. *Exit times of Brownian motion, harmonic majorization, and Hardy spaces*, *Advances in Math.* **26** (1977), 182–205.
27. *Brownian motion and classical analysis*, *Proc. of Symposia in Pure Math.* **31** (1977), 5–14.
28. *Point estimation*, reprint of [12] with new material added in a postscript, *International Encyclopedia of Statistics* **1** (1978), 251–259.
29. *Boundary value estimation of the range of an analytic function*, *Michigan Math. J.* **25** (1978), 197–211.
30. *Approximation of L^1 -bounded martingales by martingales of bounded variation*, with T. Shintani, *Proc. Amer. Math. Soc.* **72** (1978), 166–169.
31. *A sharp inequality for martingale transforms*, *Ann. Probab.* **7** (1979), 858–863.
32. *Martingale theory and harmonic analysis in Euclidean spaces*, *Proc. of Symposia in Pure Math.* **35: 2** (1979), 283–301.
33. *Weak inequalities for exit times and analytic functions*, *Proceedings of the Probability Semester (Stefan Banach International Mathematical Center, Warsaw, Spring, 1976)* Banach Center Publications **5** (1979), 27–34.
34. *Brownian motion and the Hardy spaces H^p* , *Aspects of Contemporary Complex Analysis*, edited by D. A. Brannan and J. G. Clunie, Academic Press, London, 1980, pp. 97–118.
35. *A geometrical characterization of Banach spaces in which martingale difference sequences are unconditional*, *Ann. Probab.* **9** (1981), 997–1011.
36. *Martingale transforms and the geometry of Banach spaces*, *Proc. of the Third International Conference on Probability in Banach Spaces (Tufts University, 1980)*, *Lecture Notes in Mathematics* **860** (1981), 35–50.
37. *A nonlinear partial differential equation and the unconditional constant of the Haar system in L^p* , *Bull. Amer. Math. Soc.* **7** (1982), 591–595.
38. *A geometric condition that implies the existence of certain singular integrals of Banach-space-valued functions*, *Conference on Harmonic Analysis in Honor of Antoni Zygmund, (Chicago, 1981)*, edited by William Beckner, Alberto P. Calderón, Robert Fefferman, and Peter W. Jones. Wadsworth, Belmont, California, 1983, pp. 270–286.
39. *Boundary value problems and sharp inequalities for martingale transforms*, *Ann. Probab.* **12** (1984), 647–702.
40. *An elementary proof of an inequality of R. E. A. C. Paley*, *Bull. London Math. Soc.* **17** (1985), 474–478.
41. *An extension of a classical martingale inequality*, *Probability Theory and Harmonic Analysis*, edited by J. A. Chao and W. A. Woyczynski. Marcel Dekker, New York, 1986, pp. 21–30.
42. *Martingales and Fourier analysis in Banach spaces*, C.I.M.E. Lectures (Varenna (Como), Italy, 1985), *Lecture Notes in Mathematics* **1206** (1986), 61–108.
43. *A sharp and strict L^p -inequality for stochastic integrals*, *Ann. Probab.* **15** (1987), 268–273.
44. *A proof of Pelczyński's conjecture for the Haar system*, *Studia Math.* **91** (1988), 79–83.
45. *Sharp inequalities for martingales and stochastic integrals*, *Colloque Paul Lévy (Palaiseau, 1987)*, *Astérisque* **157-158** (1988), 75–94.

46. *Differential subordination of harmonic functions and martingales*, Harmonic Analysis and Partial Differential Equations (El Escorial, 1987), Lecture Notes in Mathematics **1384** (1989), 1–23.
47. *On the number of escapes of a martingale and its geometrical significance*, Almost Everywhere Convergence, edited by Gerald A. Edgar and Louis Sucheston. Academic Press, New York, 1989, pp. 159–178.
48. *Explorations in martingale theory and its applications*, École d'Été de Probabilités de Saint-Flour XIX–1989, Lecture Notes in Mathematics **1464** (1991), 1–66.
49. *Sharp probability bounds for Itô processes*, Statistics and Probability: A Raghu Raj Bahadur Festschrift, edited by J. K. Ghosh, S. K. Mitra, K. R. Parthasarathy, and B. L. S. Prakasa Rao. Wiley Eastern, 1993, pp. 135–145.
50. *Strong differential subordination and stochastic integration*, Ann. Probab. **22** (1994), 995–1025.
51. *Sharp norm comparison of martingale maximal functions and stochastic integrals*, Norbert Wiener Centenary Congress, 1994, Proceedings of Symposia in Applied Mathematics **52** (1997), 343–358.
52. *Some extremal problems in martingale theory and harmonic analysis*, Harmonic Analysis and Partial Differential Equations: Essays in Honor of Alberto P. Calderón, edited by Michael Christ, Carlos E. Kenig, and Cora Sadosky. University of Chicago Press, 1999, pp. 99–115.
53. *Martingales and singular integrals in Banach spaces*, Handbook of the Geometry of Banach Spaces, Volume 1, edited by William B. Johnson and Joram Lindenstrauss. Elsevier, 2001, pp. 233–269.
54. *The best constant in the Davis inequality for the expectation of the martingale square function*, Trans. Amer. Math. Soc. (2001) (to appear).