

VITA

Dr. Richard F. Gundy

Office: Statistics Department
Hill Center, Rm. 455
Rutgers University
Piscataway, NJ 08854-8019
(848) 445-7642

Education:

A.B. 1955 Illinois College
Ph.D. 1960 Indiana University (Experimental Psychology)
Ph.D. 1966 University of Chicago (Statistics)

Present Position:

Professor of Statistics and Mathematics
Rutgers University, Piscataway, New Jersey

Previous Positions:

1963-65 T. H. Hildebrandt Instructor, University of Michigan
1965-66 Assistant Professor, Statistics, Rutgers University
1966-70 Associate Professor, Statistics, Rutgers University
1970- Professor, Statistics, Rutgers University
1968-69 Visiting Professor, Rutgers Faculty Fellowship,
The Hebrew University, Jerusalem, Israel
1970-71 (*Fall Semester*) Visiting Member, Institute Mittag-Leffler,
Djursholm, Sweden
1970-71 (*Spring*) Prof. d'échange, Univ. of Paris, Orsay, France
1974-75 Rutgers Faculty Fellowship, Univ. of Paris, Orsay, France
1977 (*Spring*) Prof. d'échange, Univ. of Paris, Orsay, France
1978-79 FASP leave of absence; Univ. of Paris, Orsay, France
1978-80 (*Spring*) Overseas Fellow, Churchill College, Cambridge Univ.
1981 (*Summer*) Lecturer, Univ. of Texas
1982 Prof. d'échange, Univ. of Grenoble, Univ. of Paris
1982-83 Prof. Associé, Univ. of Paris (also supported by a Faculty
Fellowship Leave (Rutgers))
1984 (*Spring*) Prof. d'échange, Université de Provence, Marseille,
France
1986 (*Spring*) Visiting member, Institute d'Estudis Catalans, Centre de
Recerca Matemàtica, Barcelona, Spain
1986 (*March*) Visiting member, Banach Institute, Warsaw, Poland
1987 (*June-July*) Prof. Associé, Université de Clermont, Clermont-
Ferrand, France
1988 (*May*) Prof. Associé, Université de Clermont, Clermont-Ferrand,
France

1989 (February) Ecole normale sup. (Cachan)
 1990-91 (March-Jan.) Institute Fourier, Université de Grenoble
 1991 (May-June) Universidad Central de Venezuela
 1991-92 (Dec.-Jan) Lab. de Probabilities, Paris VI, Paris, France
 1993 (Jan.) Universidad Central de Venezuela
 1994 (May-Aug) Universidad Autonoma de Madrid (Sabbatical program supported by Spanish government)
 1997 (May) Universidad Central de Venezuela

Professional Associations:

Fellow, Institute of Mathematical Statistics
 Fellow of the American Mathematical Society (inaugural class, 2012)

Associate Editor:

1987-to date *Publicacions Mathematiques*, Barcelona
 1988-2000 *Potential Analysis*, Kluwer
 1998-to date *Applied and Computational Harmonic Analysis*, Academic Press

Selected Invited Lectures:

American Mathematical Society, New York, April 1979, Hour Address.
 “Recent developments in probabilities theory and classical analysis”
Ecole d’ete de probabillite de St. Flour, St. Flour, France, 1978, principal speaker,
 Ten lectures.
 North British Functional Analysis Seminar, Edinburgh, Scotland; Principal
 Speaker, May 1980
 Midwest Conference on Real Analysis in Honor of A. Zygmund, Mar. 1981
 Martingale Theory in Harmonic Analysis and Banach Spaces.
 Cleveland, Ohio, July, 1981
 Conference Board on Mathematical Sciences; Principal Lecturer, DePaul
 University, Chicago, Illinois, July, 1986, ten lectures.

Recent Invited Lectures:

AMS meeting on Probability Theory and Applications, Bloomington, IN, March, 1993

Kolmogorov semester, Euler International Mathematics Institute, St. Petersburg, Russia, March, 1993

Colloquium Speaker, Purdue University, March, 1993

Colloquium in Honor of Y.S. Chow, Columbia University, April, 1993

Invited Paper, AMS Meeting in Chicago, Ill., March, 1994

Principal Speaker, Journée d'Analyse à l'honneur de Alain Bernard, Grenoble, France, June, 1998.

Invited Paper, Annual Winter Meeting of the American Mathematical Society, San Antonio, January, 1999

Hour Lecture, AMS Regional Meeting, Urbana, Ill., March, 1999

Resource Person (Four Lectures), sixth European Conference on Functional Analysis, Dubrovnik, Croatia, September 18-October 3, 1999.

Two lectures, Séminaire d'Analyse (Gilles Pisier), Paris VI, November, 1999.

Conference on Harmonic and Stochastic Analysis, Northwestern University, June, 2000.

Lecture, Statistics Department, Columbia University, January 2001.

Lecture, Department of Mathematics, Cambridge University, Cambridge, England, May 2001.

“Wavelets 2002,” University of Barcelona, Barcelona, Spain, July 1-7, 2002. (Principal Speaker: Five lectures)

Three lectures on “Riesz Transforms and Probability Theory” for the working group on the Navier-Stokes Equation, Oregon State University, July 5-9, 2004.

Two lectures on “Calderón reproducing formula and probability” and “Low pass filters, statistical, mechanics, and martingales.” Workshop on Wavelets and Harmonic Analysis, University of Singapore, August 1-15, 2004.

Two lectures, “Wavelet construction and ergodic theory I, II” at the 20th Annual Mini-Conference on Harmonic Analysis, Auburn University, Auburn, Alabama. (Principal invited speaker) November 5-6, 2004.

Lecture: 1st USA-Croatia Conference on Wavelets and Frames, Terme Tuhelj, Croatia, May 30- June 1, 2005.

Lectures: Probability, Ergodic Theory. Conference on Ergodic Theory and Harmonic Analysis (in Honor of Marshall Ash and Roger Jones), DePaul University, Chicago, IL, Dec 1-4, 2005.

Lecture: 2nd USA Conference on Wavelets and Frames, Washington University, St. Louis, MO, April 2006.

Two Lectures on Wavelets: Department of Mathematics, University of New Mexico, Albuquerque, NM, April 27-28, 2006.

Colloquium lecture, Dept. of Math. Washington University, St. Louis, MO. April 24, 2008,

Keynote speaker, Science Fair, “What is a fair game?” Roosevelt University, Chicago, Ill., April 1, 2011
 Seminar on wavelets, ‘Pascal, Fermat, and Daubechies”, Dept. of Math. Washington Univ. April 25, 2008.
 Probability seminar, CUNY Graduate Center, November 10, 2009
 Roosevelt University, Chicago, Illinois, Lecture to Math. Dept., Keynote speaker for the Science Fair, March 31, April 1, 2011

Publications:

1. Completeness of L^2 and a Theorem of Renyi, *Michigan Math. J.* **12** (1965), 161-167.
2. Martingale Theory and the Pointwise Convergence of Certain Orthogonal Series, *Trans. Amer. Math. Soc.* **124** (2) (1966), 228-248.
3. The Martingale Version of the Theorem of Marcinkiewicz and Zygmund, *Ann. Math. Statist.* **38** (3) (June) (1967), 725-734.
4. On a Stopping Rule and the Central Limit Theorem (with David Siegmund), *Ann. Math. Statist.* **38** (6) (December) (1967), 915-917.
5. On a Class of Martingale Series, in *Orthogonal Expansions and their Continuous Analogues*, Edited by Deborah Tepper Haimo, Proceedings of the Conference held at Southern Illinois Univ., Edwardsville, April 27-29, 1967, pp.99102.
6. A Decomposition of L^1 -Bounded Martingales, *Ann. Math. Statist.* **39** (1) (1968), 134-138.
7. On the Class $L \log L$, Martingales, and Singular Integrals, *Studia Math.* **33**, 109-118.
8. Extrapolation and Interpolation of Quasi-Linear Operators on Martingales (with D.L. Burkholder), *Acta Math.* **124** (1970), 250-304.
9. Integral Inequalities for Convex Functions of Operators on Martingales (with D.L. Burkholder and B. Davis), *Proceedings of the Sixth Berkeley Symposium on Probability and Statistics*, **II**, (1972), 230-240.
10. A Maximal Function Characterization of the Class H_p (with D.L. Burkholder and M.L. Silverstein), *Trans. Amer. Math. Soc.* **157** (1971), 137-153.
11. Distribution Function Inequalities for Certain Martingales, *Seminaire d'analyse harmonique*, Université de Paris, Orsay, **1970-71**.
12. Distribution Function Inequalities for the Area Integral (with D.L. Burkholder), *Studia Math.* **44** (1972), 527-544.
13. Boundary Behavior of Harmonic Functions in a Half-Space and Brownian Motion (with D.L. Burkholder), *Ann. de l'Institut Fourier* **23** (4) (1973).
14. Weighted Integral Inequalities for the Nontangential Maximal Function, Lusin Area Integral, and Walsh-Paley Series (with R.L. Wheeden), *Studia Math.* **49** (1973), 101-118.

15. A Martingale that Occurs in Harmonic Analysis (with N. Varpoulos), *Ark. Math.* 14 (2) (1976), 179-187.
16. Local Convergence of a Class of Martingales in Multi-Dimensional Time, *Ann. Prob.* 8 (3) (1980), 607-614.
17. Inégalités pour les Martingales à Un et Deux Indices, *Ecole d'été, St. Flour*, 1978. Lecture Notes in Math. #774, Springer-Verlag.
18. H_p Spaces for the Bidisc (with E.M. Stein), *Proc. Nat. Acad. Sci.* 76 (3) (1978), 106-109.
19. Maximal Function Characterization of H_p for the Bidisc. *Proceedings of the Conference on Harmonic Analysis, Iraklion*, 1978. Lecture Notes in Math., #784, Springer-Verlag.
20. Les Transformations de Riesz et les Intégrales Stochastiques (with N. Th. Varpoulos), *C R. Acad. Sci. Paris* 289 (2 juillet) (1979).
21. Sur l'Intégrabilité Uniforme des Martingales (with J. Azema and M. Yor), *Seminaire de Prob. XIV*, 1978/79. Lecture Notes in Math. #784, pp. 53-61, Springer-Verlag.
22. On a Theorem of F. and M. Riesz and an Identity of A. Wald, *Indiana J. Math.* 30 (4) (1981).
23. On a Probabilistic Interpretation of the Riesz Transforms (M.L. Silverstein), *Functional Analysis and Markov Processes*, Kyoto, 1981; Lecture Notes in Math., #923, Springer-Verlag.
24. On a Theorem of Kabanov, Lipster, and Shirayev (with G.K. Eagleson), *Probability and Statistics*, London. Math Soc. Notes #79, pp. 99-111, Cambridge Univ. Press, 1983.
25. The Density of the Area Integral. *Conference of Harmonic Analysis in Honor of A. Zygmund*, vol. 1, Wadsworth, 1983, pp.138-149.
26. Inequalities for Ratios of Functionals of Harmonic Functions (with R. Fefferman, M. Silverstein and E. M. Stein), *Proc. Nat. Acad. Sci., USA* 79 (1982), 7958-7960.
27. Temps Locaux et l'Intégrale d'Aire, in *Séminaire de Prob.*, 1982/83. Springer-Verlag.
28. The Density of the Area Integral in \mathbb{R} (with M. Silverstein), *Ann. de l'Institut Fourier* 35 (1) (1985), 215-229.
29. Sur les Transformations de Riesz Pour le Semi-Group d'Ornstien-Uhlenbeck, *C. R. Acad. Sci. Paris* 303 (Ser. I) (19) (1986).
30. Topics in Probability and Analysis, Monograph for the Conference Board on Math Sciences Lecture Series, DePaul University, July 1986.
31. Some Martingale Inequalities with Applications to Harmonic Analysis, *J. Functional Analysis* 87 (1) (1989), 212-230.
32. Fonctionnelles de variation quadratique et équations de dilatation (with I. Iribarren), *C. R. Acad. Sci. Paris* 317 (Ser. I) (1993), 333-336.
33. Distribution Function Inequalities for Quadratic Variation: A Survey, *Proceedings of the Euler International Mathematical Institute*, 1993.
34. Quadratic Functionals and Dilation Equations (with I. Iribarren), *Potential Analysis* 4 (No. 5), October 1995, 503-519.

35. Review of “A First Course on Wavelets,” by E. Hernández and G. Weiss, CRC Press, Inc. 1996. *SIAM Reviews* **40**, June 1998, 40-47.
36. Stopping Times and Local Convergence of Spline Wavelet Expansions (with K. Kazarian). *SIAM J. Math. Analysis* **31** (3) (2000), 561-573.
37. Stability Properties for a Compactly Supported Prescale Function (with V. Dobric and P. Hitczenko). *SIAM J. Math. Analysis* **31** (3) (2000), 574-580.
38. Characterizations of Orthonormal Scale Functions: A Probabilistic Approach (with V. Dobrić and P. Hitczenko). *J. Geometric Analysis* **10** (3) (2000), 413-430.
39. Two Remarks on Wavelets: Cohen’s Characterization for Low-pass Filters, and Meyer’s Theorem on Linear Independence, in vol. *Contemporary Math: The Harmonic and Functional Analysis of Wavelets*, AMS #247, 249-257, Providence RI, 1999.
40. Low-pass Filters, Martingales, and Multiresolution Analyses. *Applied and Computational Harmonic Analysis* **9** (2) (2000), 204-219.
41. Five lectures (Wavelets and Gaussian Processes, ...) in Lecture Notes, Institut de Matemàtica, Universitat de Barcelona, vol. 1 (2002), pp. 125-215.
42. Probability, Ergodic Theory and Low-pass Filters, in Topics in Harmonic Analysis and Ergodic Theory, *Contemporary Mathematics* #444, pp. 53-87, (2007) American Math. Soc.
43. Scaling Functions for Dilations on \mathbb{R}^2 with Determinant ± 2 . (with Adam Jonsson) *Applied and Computational Harmonic Analysis*, **29**(1) (2010), pp. 49-62.
44. Tilings, Scaling Functions, and a Markov Process, Invited paper, *Notices of the American Mathematical Society*, **57** (9)(2010), pp.1094-1102.
45. On the Contribution of Paul and Marie-Paule Malliavin to the Study of Boundary Values of Harmonic Functions in the Bi-Disc, Obituary in *Notices of the American Mathematical Society*, April, 2011