BURGESS JAMES DAVIS

EDUCATION

B.S.	Ohio State	1965
M.S.	University of Illinois	1966
Ph.D.	University of Illinois	1968

PROFESSIONAL EXPERIENCE

Assistant Professor	Rutgers University	1968-71
Associate Professor	Rutgers University	1971-74
Associate Professor	Purdue University	1974-76
Professor	Purdue University	1977-2014
Professor Emeritus	Purdue University	2014-
Associate Editor	Annals of Probability	1981-87
Associate Editor	Transactions of the AMS	1988-90
Editor	Annals of Probability	1991-93
Associate Editor	Illinois Journal of Math	1999-02

PROFESSIONAL SOCIETIES AND HONORS

Institute of Mathematical Statistics (Fellow)
One of top eleven teachers in School of Science (2000)

RESEARCH INTERESTS

Probability
Analysis

VITA

Birthdate:	April 8, 1944
Birthplace:	Springfield, Missouri
Citizenship:	USA

PUBLICATIONS

1. Comparison tests for the convergence of martingales. Ann. Math. Stat. Vol. 39, December 1968, 2141-2144.

2. Comparison tests for martingale inequalities. Ann. Math. Stat. Vol. 40, April 1969, 505-508.

3. Divergence properties of some martingale transforms. Ann. Math. Stat. Vol. 40, 1969, 1852-1854.

4. Stopping rules for S_n/n and the class L log L, Z . Wahrscheinlichkeitstheorie und Verw. Gebiete, Vol. 17, 1971, 147-150.

5. On the integrability of the martingale square function. Israel J. of Math., Vol. 8, No. 2, 1970, 187-190.

6. (with D. L. Burkholder and R. Gundy) Integral inequalities for convex functions of Martingales. Proc. Sixth Berkeley Symposium of Mathematical Statistics and Probability, Vol. 2, 223-240.

7. Moments of random walk and the existence of certain optimal stopping times for S_n/n. Ill. J. of Math., 17 (1973), 75-81.

8. An inequality for the distribution of the Brownian gradient function. Proc. Amer. Math. Soc., 37 (1973), 189-194.

9. (with J. L. Lewis) An extremal property of some capacity measures in E_n . Proc. Amer. Math. Soc., 39 (1973), 520-524.

10. On the distributions of conjugate functions of nonnegative measures. Duke Math. J., 40 (1973), 695-701.

11. On the weak type (1,1) inequality for conjugate functions. Proc. Amer. Math. Soc., 44 (1974), 307-311.

12. Picard's theorem and Brownian motion. Trans. Amer. Math. Soc., 213 (1975), 353-361.

13. On Kolmogrov's inequality $\|f\| \le C_p \|f\|1, 0 < p < 1$. Trans. Amer. Math. Soc. 222 (1976), 179-192.

14. On the L^p norms of stochastic integrals and other martingales. Duke Math. J. 43 (1976), 697-704.

15. On stopping times for n dimensional Brownian motion. Ann. Prob. 6 (1978), 651-659.

16. Brownian motion and analytic functions. Ann. Prob. 7 (1979), 913-932.

17. Brownian motion and conjugate function inequalities. Proceedings of Symposia in Pure Math. Vol. 35 (1979), 303-310.

PUBLICATIONS (CONT.)

18. Conjugate functions of rearranged functions. Aspects of Contemporary Complex Analysis. Proceedings of a NATO advanced study institute. (1980), 377-382.

19. Hardy spaces and rearrangements. <u>Trans</u>. <u>Amer</u>. <u>Math</u>. <u>Soc</u>. (1980), 211-233.

20. On the integrability of the ergodic maximal function. <u>Studia</u> <u>Math</u>. (1982), 153-167.

21. (with J.L. Lewis) The harmonic measure of porous membranes in R^n. Proceedings of an AMS conference. Springer Lecture Notes 939, 29-35.

22. (with John L. Lewis) Paths for subharmonic functions. <u>Proc</u>. <u>London</u> <u>Math</u>. <u>Soc</u>.(3) 48 (1984), 401-427.

23. Brownian slow points. <u>Zeitschrift</u> <u>fur</u> <u>Wahrschemkikeitstheorie</u> 64 (1983), 359-367.

24. On the paths of symmetric stable processes. <u>Trans</u>. <u>Amer</u>. <u>Math</u>. <u>Soc</u>. 2 (1984), 785-794.

25. (with Itrel Monroe) Randomly started signals with white noise. <u>Ann</u>. <u>Prob</u>. 12 (1984), 922-925.

26. (with Edwin Perkins) Brownian slow points: the critical case. <u>Ann</u>. <u>Prob</u>. 13 (1985), 779-803.

27. (with Jeesen Chen and Herman Rubin) How non-uniform can a uniform sample be: A histogram approach. <u>Probability</u> <u>Theory</u> <u>and</u> <u>Its</u> <u>Applications</u> 73 (1986), 245-254.

28. On the Barlow-Yor inequalities for local time. (1987) Seminaire de Probabilities XXI. Springer LNM 1247, 218-220.

29. (with David Avis and J. M. Steele) Probabilistic analysis of a greedy heuristic for Euclidean matching. <u>Probability</u> <u>in</u> <u>Information</u> <u>Theory</u> <u>and</u> <u>Computer</u> <u>Science</u> 2 (1988), 143-156.

30. (with Tom Salisbury) Connecting Brownian paths. <u>Ann</u>. <u>Prob</u>. 16 (1988), 1428-1457.

31. Conditioned Brownian motion in planar domains. <u>Duke</u> <u>Math</u> <u>Journal</u> 57 (1988), 397-421.

32. (with Rodrigo Bañuelos) Heat Kernel, Eigcufunctions, and Conditioned Brownian Motion in Planar Domains. <u>Journal</u> <u>of</u> <u>Functional</u> <u>Analysis</u> 84 (1989), 188-200.

33. Loss of Recurrence in Reinforced Random Walk. Almost Everywhere Convergence. Proceedings of a Conference, <u>Academic</u> <u>Press</u> (1989), 179-189.

34. Reinforced Random Walk. <u>Prob</u>. <u>Thry</u>. <u>Rel</u>. <u>Fields</u> 84 (1990), 203-229.

35. Intrinsic Ultracontractivity and the Dirichlet Laplacian. (1991) <u>Journal</u> <u>of</u> <u>Functional</u> <u>Analysis</u> 100, 162-180.

PUBLICATIONS (CONT.)

36.   Intrinsic Ultracontractivity and Probability. (1992) In Partial Differential Minimal Smoothness and Applications. (IMA proceedings #42, 111-114).

37.   (with Rodrigo Bañuelos) A Geometric Characterization of Intrinsic Ultracontractivity in Planar Domains with Boundaries Given by the Graphs of Functions. (1992) <u>Indiana University</u> <u>Math</u> <u>Journal</u>, 41, 885-913.

38.   (with Rodrigo Bañuelos) Sharp Estimates for Dirichlet Eigenfunctions in Horn-Shaped Regions. (1992) <u>Communications in</u> <u>Mathematical</u> <u>Physics</u>, 209-215.

39.   (with Biao Zhang) Moments of the Lifetime of Conditioned Brownian Motion in Cones. (1994) Proceedings of the American Mathematical Society, 121, 925-929.

40.   (with David McDonald) An Elementary Proof of the Local Limit Theorem. (1995) <u>Journal</u> <u>of</u> <u>Theoretical</u> <u>Probability</u>, 8, 693-701.

41.   Weak Limits of Perturbed Random Walks. (1996) <u>Ann.</u> <u>Prob</u>. 24, 2007-2023.

42.   Distribution of Brownian Local Time on Curves. (1998) <u>Bull.</u> <u>Lon.</u> <u>Math.</u> <u>Soc</u>., 30, 182-184.

43.   Perturbed random walks and Brownian motions and local times. (1998), <u>New</u> <u>York</u> <u>Journal</u> <u>of</u> <u>Math</u>, 3A, 81-87. Proceedings of a conference.

44.   Brownian motion and random walk perturbed at extrema. (1999) <u>Prob.</u> <u>Thry.</u> <u>Rel</u>. <u>Fields,</u> 113, 501-518.

45.   Reinforced and perturbed random walks. (1999) <u>Random Walks</u>, 113-127, Janos Bolgai, Mathematical Society. Proceedings of a conference.

46.   On the spectral gap for fixed membranes. (2001) <u>Ark. Mat</u>., 39, 65-74.

47.   (with Stanislav Volkov) Continuous time vertex reinforced jump processes. (2002) <u>Prob. Thry. Rel. Fields</u> 123, 281-300.

48.   (with Majid Hosseini) Ratio inequalities for heat content (2004) <u>Journal London Math Society</u>. 69, 97-106.

49.   (with Stanislav Volkov) Vertex reinforced random jump processes on trees and finite graphs. (2004) <u>Prob.</u> <u>Thry.</u> <u>Rel.</u> <u>Fields</u>, 128, 42-62.

50.   On time changing continuous martingales to Brownian motion. Institute of Mathematical Statistics, Lecture Notes Monograph (2004), Series 45, 138-139.

51.   (with Jiyeon Suh) On Burkholder's supermartingales. (2006) <u>Illinois Journal of Math.</u> 50, 313-322.

52.   (with Noah Dean) Recurrence and Transience preservation for vertex reinforced jump processes in one dimension. (2010) Illinois J. Math. 54, no. 3, 869-893.

53.   Co-editor with Renming Song: The Selected Works of Donald Burkholder. (2011)
       Springer.

54.   (with Rodrigo Banuelos) Donald Burkholder's work in martingales and analysis.
       (2011). Commentary in *The Selected Works of Donald Burkholder,* Springer,

55.   (with Jonathan Peterson) Excited random walks with non-nearest neighbor steps.
       Submitted in 2015.

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PH. D. STUDENTS

Joseph Petrucelli	1976
Jaiming Xu	1991
Darryl Nester	1993
Biao Zhang	1994
Majid Hosseini	2003
Andrea Collevecchio	2004
Noah Dean	2008