

Professor Sir Bernard Walter Silverman FRS

Publications

Books: authored

1. *Density Estimation for Statistics and Data Analysis*. London: Chapman and Hall. (1986)
2. (with P. J. Green) *Nonparametric Regression and Generalized Linear Models: A Roughness Penalty Approach*. London: Chapman and Hall. (1994)
3. (with J. O. Ramsay) *Functional Data Analysis*. New York: Springer. (1997)
4. (with J. O. Ramsay) *Applied Functional Data Analysis: Methods and Case Studies*. New York: Springer. (2002)
5. (with J. O. Ramsay) *Functional Data Analysis, Second Edition*. (Revised and considerably extended). New York: Springer. (2005)

Books: edited

6. (with G. A. Barnard, G. E. P. Box, D. R. Cox, and A. H. Seheult). *Industrial Quality and Productivity with Statistical Methods: A Joint Symposium of the Royal Society and the Royal Statistical Society*. London: The Royal Society. (1989) Also published as *Phil. Trans. R. Soc. Lond. A*, **327**, 477–638.
7. (with J. C. Vassilicos). *Wavelets: The Key to Intermittent Information?*. Oxford University Press. (2000). Also published as *Phil. Trans. R. Soc. Lond. A*, **357**, 2393–2625.

Major published reports

8. *GM Science Review: First Report*. Department of Trade and Industry, 296 pp.¹ (2003)
9. *GM Science Review: Second Report*. Department of Trade and Industry, 116 pp.¹⁰ (2004)
10. *The UK's Science and Mathematics Teaching Workforce: a 'State of the Nation' Report*. The Royal Society, 109pp.² (2007)
11. *Science and mathematics education, 14–19: A 'state of the nation' report on the participation and attainment of 14–19 year olds in science and mathematics in the UK, 1996–2007*. The Royal Society, 199pp.¹¹ (2008)
12. *Research and Development in Forensic Science: a Review*³. Home Office. (2011)
13. (with Kevin Bales and Bodean Hedwards) *Modern Slavery Research: the UK Picture*. Independent Anti-Slavery Commissioner and University of Nottingham. Available at iascresearch.nottingham.ac.uk. 76pp and interactive database. (2018)

¹ Jointly authored: I took a lead role in drafting the summary versions.

² Authored by a Royal Society Working Group; see <http://royalsociety.org/education/policy/state-of-nation/>

³ <http://www.homeoffice.gov.uk/publications/agencies-public-bodies/fsr/forensic-science-review/>

Refereed journal publications

15. On a Gaussian process related to multivariate probability density estimation. *Math. Proc. Camb. Phil. Soc.*, **80**, 135–144. (1976).
16. Limit theorems for dissociated random variables. *Adv. Appl. Prob.*, **8**, 806–819. (1976).
17. Weak and strong uniform consistency of the kernel estimate of a density and its derivatives. *Ann. Statist.*, **6**, 177–184. (1978).
18. Density ratios, empirical likelihood and cot death. *Applied Statistics*, **27**, 26–33. (1978).
19. Choosing a window width when estimating a density. *Biometrika*, **65**, 1–11. (1978).
20. Distances on circles, toruses and spheres. *J. Appl. Prob.*, **15**, 136–143. (1978).
21. (with T.C. Brown). Short distances, flat triangles and Poisson limits. *J. Appl. Prob.*, **15**, 815–825. (1978).
22. (with F.J. Guild). The microstructure of glass fibre reinforced polyester. *Journal of Microscopy*, **114**, 131–141. (1978).
23. (with B.D. Ripley). Quick tests for spatial interaction. *Biometrika*, **65**, 641–2. (1978).
24. (with T.C. Brown). Rates of Poisson convergence for U statistics. *J. Appl. Prob.*, **16**, 428–432. (1979).
25. (with C.Y. Barlow and others). Grain to grain variations in NbC particle size in an austenitic stainless steel. *Journal of Materials Science*, **14**, 423–430. (1979).
26. (with P.J. Green). Constructing the convex hull of a set of points in the plane. *Computer Journal*, **22**, 262–266. (1979).
27. (with P.J.L. Wallis). Efficient implementation of the Ada overloading rules. *Information Processing Letters*, **10**, 120–123. (1980).
28. Some asymptotic properties of the probabilistic teacher. *IEEE Trans. Inf. Theory*, **26**, 246–249. (1980).
29. (with D.M. Titterton). Minimum covering ellipses. *SIAM J. Sci. Stat. Comp.*, **1**, 401–409. (1981).
30. Using kernel density estimates to investigate multimodality. *J. Roy. Statist. Soc. B*, **43**, 97–99. (1981).
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32. (with T.C. Brown and R.K. Milne). A class of two-type point processes. *Z. Wahrscheinlichkeitsth. verw. Geb.*, **58**, 299–308. (1981).
33. Kernel density estimation using the fast Fourier transform. Algorithm AS176, *Appl. Stat.*, **31**, 93–99. (1982).
34. (with M.H.J. Keenan and A.H. Rose). Effect of plasma-membrane phospholipid unsaturation of solute transport into *Saccharomyces cerevisiae* NCYC 366. *J. Gen. Microbiol.*, **128**, 1447–1455. (1982).
35. (with A. Wheals). Unstable activator model for size control of the cell cycle. *J. Theor. Biol.*, **97**, 505–510. (1982).
36. On the estimation of a probability density function by the maximum penalized likelihood method. *Ann. Statist.*, **10**, 795–810. (1982).
37. (with H.W. Lotwick). Methods for analysing spatial processes of several types of points. *J. Roy. Statist. Soc. B*, **44**, 406–413. (1982).

38. (with Y.P. Mack). Weak and strong uniform consistency of kernel regression estimates. *Z. Wahrscheinlichkeitsth. verw. Geb.*, **61**, 405–415. (1982).
39. Convergence of a class of empirical distribution functions of dependent random variables. *Ann. Probab.*, **11**, 745–751. (1983).
40. Spline smoothing: the equivalent variable kernel method. *Ann. Statist.*, **12**, 898–916. (1984).
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42. (with A.J. Baddeley). A cautionary example on the use of second-order methods for analysing point patterns. *Biometrics*, **40**, 1089–1093. (1984).
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47. (with G.A. Young). The bootstrap: to smooth or not to smooth? *Biometrika*, **74**, 469–479. (1987).
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49. (with J.H. Friedman). Flexible parsimonious smoothing and additive modeling (with Discussion and Response). *Technometrics*, **31**, 1–39. (1989).
50. (with M. C. Jones). An orthogonal series density estimation approach to reconstructing positron emission tomography images. *Journal of Applied Statistics*, **16**, 177–191. (1989).
51. (with M. C. Jones). E. Fix and J. L. Hodges (1951): an important unpublished contribution to nonparametric discriminant analysis and density estimation. *International Statistical Review*, **57**, 233–247. (1989).
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57. (with I. M. Johnstone). Discretization effects in statistical inverse problems. *J. Complexity*, **7**, 1–34. (1991).

58. (with C. K. Carter and G. K. Eagleson). A comparison of the Reinsch and Speckman splines. *Biometrika*, **79**, 81–91. (1992).
59. (with N. R. Franks, A. Wilby and C. Tofts). Self-organizing nest construction in ants: sophisticated building by blind bulldozing. *Animal Behaviour*, **44**, 357–375. (1992).
60. (with D. A. Cook, P. McCombie and D. Rattray) The measurement and checking of the accuracy of small strain measurements during testing of model brick walls. *Masonry International: Journal of the British Masonry Society*, **6**, 82–88. (1993).
61. (with S. E. Leurgans and R. A. Moyeed). Canonical correlation analysis when the data are curves. *J. Roy. Statist. Soc. B.*, **55**, 725–740. (1993).
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69. Smoothed functional principal components analysis by choice of norm. *Ann. Statist.*, **24**, 1–24. (1996).
70. (with D. Bloch) Monotone discriminant functions and their applications in rheumatology. (1997). *J. Amer. Statist. Assoc.*, **92**, 144–153.
71. (with I. M. Johnstone) Wavelet threshold estimators for data with correlated noise. (1997). *J. Roy. Statist. Soc. B*, **59**, 319–351.
72. (with J. O. Ramsay and N. Heckman) Spline smoothing with model-based penalties. *Behavior Research Methods, Instruments, and Computers*, **29**, 99–106. (1997).
73. (with F. Abramovich) Wavelet decomposition approaches to statistical inverse problems. *Biometrika*, **85**, 115–129. (1998).
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81. Wavelets in statistics: beyond the standard assumptions. *Phil. Trans. R. Soc. Lond. A* **357**, 2459–2473 (1999)
82. (with F. Abramovich and T. Sapatinas) Stochastic expansions in an overcomplete wavelet dictionary. *Probability Theory and Related Fields*, **117**, 133–144. (2000).
83. (with A. Kovac) Extending the scope of wavelet regression methods by coefficient-dependent thresholding. *J. Amer. Statist. Assoc.*, **95**, 172–183. (2000).
84. (with C. M. Swain and R. R. Rodgers) Life after Bakke Where Whites and Blacks Agree: Public Support for Fairness in Educational Opportunities. *Harvard BlackLetter Law Journal*, **16**, 147–184. (2000).
85. (with L. Shepstone, J. Rogers, J. R. Kirwan) The distribution of distal femoral osteophytes in a human skeletal population. *Annals of the Rheumatic Diseases*, **59**, 513–520. (2000).
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91. (with S. Barber and G. P. Nason) Posterior probability intervals for wavelet thresholding. *J. Royal Statist. Soc. Ser. B.*, **64**, 189–205. (2002).
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111. (with Todd Landman) Globalization and Modern Slavery. *Politics and Governance* **7**, 275–290. [DOI: 10.17645/pag.v7i4.2233](https://doi.org/10.17645/pag.v7i4.2233) (2020).
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118. (with Kyle Vincent & Lax Chan). Bootstrapping multiple systems estimates to account for model selection. *Statistics and Computing* **34**, 44. [DOI: 10.1007/s11222-023-10346-9](https://doi.org/10.1007/s11222-023-10346-9) (2024).

Software packages (R packages unless otherwise stated)

119. EbayesThresh: Empirical Bayes thresholding and related methods. (2002—2005). Now superseded by package below.
120. (with A. Antoniadis, M. Jansen and I. M. Johnstone) EbayesThresh: MATLAB™ software for Empirical Bayes thresholding. (2004).
121. (with L. Slaets and G. Claeskens). MRwarping: Multiresolution time warping for functional data. <https://cran.r-project.org/package=MRwarping> (2013).
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Other publications and public outputs

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133. A bootstrap approach to bump hunting. *Proc. NASA Conf. on density estimation and function smoothing.* (ed. L.F. Guseman, Jr.). 195–213. (1982).
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