

Publications by Iain M. Johnstone

Publications (Refereed)

Monograph

- [1] *A probabilistic study of linear elliptic-parabolic equations of second order*. Notes on Pure Mathematics, **12** (1979), Australian National University, Canberra.

Articles

- [2] On asymptotic posterior normality for stochastic processes (with C.C. Heyde). *J. Roy. Statist. Soc. B*, **41** (1979), 184–189.
- [3] Variation diminishing transformations: A direct approach to total positivity and its statistical applications (with L.D. Brown and K.B. McGibbon). *J. Amer. Statist. Assn.*, **76** (1981), 824–832.
- [4] Asymptotically optimal procedures for sequential adaptive selection of the best normal mean (with C. Jennison and B. Turnbull). *Statistical Decision Theory and Related Topics III*, S.S. Gupta and J.O. Berger, eds., Academic Press, New York. (1982), 55–86.
- [5] On projection pursuit measures of multivariate location and dispersion (with J. Fill). *Ann. Statist.*, **12** (1984), 127–141.
- [6] Admissibility, difference equations and recurrence in estimating a Poisson mean. *Ann. Statist.*, **12** (1984), 1173–1198.
- [7] On independent statistical decision problems and products of diffusions (with S. Lalley). *Z. für Wahrscheinlichkeitstheorie*, **68** (1984), 29–47.
- [8] The resistant line and related regression methods (with P. Velleman and discussion by J.W. Tukey). *J. Amer. Statist. Assn.*, **80** (1985), 1041–1054.
- [9] Discussion of “projection pursuit” by P.J. Huber (with D. Donoho, P. Rousseeuw and W. Stahel). *Ann. Statist.*, **13** (1985), 496–500.
- [10] Efficient scores, variance decompositions and Monte-Carlo swindles (with P. Velleman). *J. Amer. Statist. Assn.*, **80** (1985), 851–862.
- [11] Admissible estimation, Dirichlet principles and recurrence of birth-death chains on Z_+^p . *Prob. Theory and Related Fields* (= *Z. Wahrsch. Th.*), **71** (1986), 231–269.
- [12] Regression approximation using projections and isotropic kernels (with D. Donoho). In *Contemporary Mathematics*, **59** (1986), 153–167, American Mathematical Society, Providence, R.I.
- [13] Une mesure d’information qui caractérise la loi de Poisson (with K.B. McGibbon). *Séminaire de Probabilités*, XXI (1987), 563–573 (Lecture Notes in Mathematics, Vol. No. 1247, J. Azéma, P.A. Meyer, M. Yor, eds., Springer-Verlag, New York. Earlier version: Mathematical Sciences Research Institute Technical report 074-83. (English) Berkeley, CA.
- [14] On inadmissibility of some unbiased estimates of loss. *Statistical Decision Theory and Related Topics IV*, S.S. Gupta and J.O. Berger, eds., December (1987) Vol. I, 361–380, Springer-Verlag, New York.

- [15] Wald's decision theory. *Encyclopedia of Statistical Sciences*, **9** (1988), 518–522, John Wiley, New York.
- [16] Projection-based approximation, and a duality with kernel methods (with D. Donoho). *Ann. Statist.*, **17** (1989), 58–106.
- [17] On Hotelling's formula for the volume of tubes and Naiman's inequality (with D. Siegmund). *Ann. Statist.*, **17** (1989), 184–194.
- [18] Maximum entropy reconstruction of complex phase-sensitive spectra (J.C. Hoch, A.S. Stern, D.L. Donoho and I.M. Johnstone). *J. Magnetic Resonance*, **86** (1990), 236–246.
- [19] Hotelling's theorem on the volume of tubes: Some illustrations in simultaneous inference and data analysis (with S. Johansen). *Ann. Statist.*, **18** (1990), 652–684.
- [20] Speed of estimation in positron emission tomography and related inverse problems (with B.W. Silverman). *Ann. Statist.*, **18** (1990), 251–280.
- [21] Fisher's information in terms of the hazard rate (with B. Efron). *Ann. Statist.*, **18** (1990), 38–62.
- [22] Does the maximum entropy method improve sensitivity? (D.L. Donoho, I.M. Johnstone, J.C. Hoch and A.S. Stern). *Proc. Natl. Acad. Sci.*, **87** (1990), 5066–5068.
- [23] A moment inequality for L_q estimation. *Statistics and Probability Letters*, **12** (1991), 289–290.
- [24] Discretization effects in statistical inverse problems (with B.W. Silverman). *J. Complexity*, **7** (1991), 1–34.
- [25] Maximum entropy and the nearly black object (with discussion) (D.L. Donoho, I.M. Johnstone, J.C. Hoch and A.S. Stern). *J. Roy. Statist. Soc. B*, **54** (1992), 41–81.
- [26] Empirical functionals and efficient smoothing parameter selection (with discussion) (with Peter Hall). *J. Roy. Statist. Soc. B*, **54** (1992), 475–530.
- [27] Minimax estimation of a constrained Poisson vector (with K.B. MacGibbon). *Ann. Statist.*, **20** (1992), 807–831.
- [28] Estimation d'une densité de probabilité par méthode d'ondelettes (with G. Kerkycharian and D. Picard). *C. R. Acad. Sci. Paris, Ser. I*, **315** (1992), 211–216.
- [29] Asymptotically minimax estimation of a constrained Poisson vector via poly-disc transforms (with K.B. MacGibbon). *Annales Institut Henri Poincaré*, **29** (1993), 289–319.
- [30] Minimax Bayes, asymptotic minimax and sparse wavelet priors. *Statistical Decision Theory and Related Topics, V*, S.S. Gupta and J.O. Berger, eds., (1994), 303–326.
- [31] On minimax estimation of a sparse normal mean vector. *Ann. Statist.*, **22** (1994), 271–289.
- [32] Minimax risk over l_p -balls for l_q -error (with D.L. Donoho). *Prob. Th. Rel. Fields*, **99** (1994), 277–303.
- [33] Ideal spatial adaptation via wavelet shrinkage (with D.L. Donoho). *Biometrika*, **81** (1994), 425–455.
- [34] Ideal denoising in an orthonormal basis chosen from a library of bases (with D.L. Donoho). *C. R. Acad. Sci. Paris, Ser. I*, **319** (1994), 1317–1322.

- [35] Wavelet shrinkage: asymptopia? (with D.L. Donoho, G. Kerkyacharian, and D. Picard) (with discussion), *J. Roy. Statist. Soc. B*, **57** (1995), 301–369.
- [36] Adapting to unknown smoothness via wavelet shrinkage (with D.L. Donoho). *J. Amer. Statist. Assn.*, **90** (1995), 1200–1224.
- [37] Neo-classical minimax problems, thresholding, and adaptation (with D.L. Donoho). *Bernoulli*, **2** (1996), 39–62.
- [38] Density estimation by wavelet thresholding (with D.L. Donoho, G. Kerkyacharian and D. Picard). *Ann. Statist.*, **24** (1996), 508–539.
- [39] Wavelet threshold estimators for data with correlated noise (with B.W. Silverman), *J. Roy. Statist. Soc. B*, **59** (1997), 319–351.
- [40] Universal near minimaxity of wavelet shrinkage (with D.L. Donoho, G. Kerkyacharian and D. Picard). *Festschrift for Lucien Le Cam: Research Papers in Probability and Statistics*, D. Pollard, E. Torgerson and G. Yang (eds.). Springer Verlag (1997), 183–218.
- [41] Minimax estimation via wavelet shrinkage (with D.L. Donoho). *Ann. Statist.*, **26** (1998), 879–921.
- [42] Exact risk analysis of wavelet regression (with J.S. Marron, S. Adak, M.H. Neumann and P. Patil). *J. Comput. Graphical Stat.*, **7** (1998), 278–309.
- [43] Asymptotic minimaxity of wavelet estimates with sampled data (with D.L. Donoho). *Statistica Sinica*. **9** (1999), 1–32.
- [44] Wavelet shrinkage for correlated data and inverse problems: adaptivity results. *Statistica Sinica*. **9** (1999), 51–83.
- [45] Wavelets and the theory of nonparametric function estimation. *Phil. Trans. Roy. Soc. Lond. A.* **357** (1999), 2475–2494.
- [46] Chi-square Oracle Inequalities. In *State of the Art in Probability and Statistics, Festschrift for Willem R. van Zwet*, M. de Gunst, C. Klaassen & A. van der Waart, editors. *IMS Lecture Notes - Monographs*, **36** (2001), 399–418.
- [47] Thresholding for weighted χ^2 . *Statistica Sinica*, **11** (2001), 691–704.
- [48] On the distribution of the largest eigenvalue in principal components analysis. *Ann. of Statist.* **29** (2001), 295–327.
- [49] Least Angle Regression. (with B. Efron, T. Hastie and R. Tibshirani). (with discussion), *Annals of Statistics*. **32** (2004), 407–499.
- [50] Boundary Coiflets for Wavelet Shrinkage in Function Estimation. (with B. W. Silverman). *J. Applied Probability* **41A** (2004), 81–98.
- [51] Needles and straw in haystacks: Empirical Bayes estimates of possibly sparse sequences (with B. W. Silverman). *Annals of Statistics*. **32** (2004), 1594–1649.
- [52] Wavelet deconvolution in a periodic setting (with G. Kerkyacharian, D. Picard and M. Raimondo), *J. Royal Statistical Society, Series B*. **66** (2004) 547–573, discussion and rejoinder, 627–652.
- [53] Periodic Boxcar Deconvolution and Diophantine Approximation (with M. Raimondo). *Annals of Statistics*. **32** (2004), 1781–1804.
- [54] Empirical Bayes approaches to mixture problems and wavelet regression. (with B.W. Silverman). In press, *Annals of Statistics*. **33** (2005), 000–000.

Contributions to Discussion Papers

- (paper by Jones and Sibson) *J. Roy. Statist. Soc. A*, **150** (1987), 29–30.
 (Härdle, Hall, Marron) *J. Amer. Statist. Assn.*, **83** (1988), 99.
 (Silverman, Jones, Wilson, Nychka) *J. Roy. Statist. Soc. B*, **52** (1990), 315–316.
 (Brown) *Ann. Statist.*, **18** (1990), 523–525.
 (Lange, Zeger) *J. Roy. Statist. Soc. C*, **46** (1997), 1–29 (with T.J. Hastie, N.J. Crellin).

Unrefereed Publications and Reports

- [1'] Tukey's resistant line and related methods—Asymptotics and algorithms (with P. Velleman). *Proc. Statist. Computing Section*, American Statistical Association, Washington D.C. (1981) 218–223.
 [2'] A Poincaré-type inequality for solutions of linear elliptic equations, with statistical applications (with M. Shahshahani). Mathematical Sciences Research Institute Technical Report 072-83 (1983), Berkeley, CA.
 [3'] Monte Carlo swindles based on variance decompositions (with P. Velleman). *Proc. Statist. Computing Section*, American Statistical Association (1983), Washington D.C., 52–59.
 [4'] A program for estimating uncertainties in quantile estimates derived from empirical Pearson fits. Technical Report (1986), Department of Statistics, Stanford University.
 [5'] On singular value decompositions for the Radon transform and smoothness classes of functions. Technical Report No. 310 (1989), Department of Statistics, Stanford University.
 [6'] Threshold selection for wavelet shrinkage of noisy data (with D.L. Donoho). *Proc. 16th Annual Conf. of the IEEE Engineering in Medicine and Biology Society* (1994), 24a – 25a, IEEE Press.
 [7'] Statistical models for image sequences (with N.J. Crellin and T.J. Hastie). *Computing Science and Statistics* (L. Billard and N.I. Fisher, eds.) **28** (1997), 63–71.
 [8'] Statistical Models for Image Sequences (with Neil Crellin and Trevor Hastie). Technical Report, 1998
 [9'] Oracle Inequalities and Nonparametric Function Estimation. *Documenta Mathematica; Extra Volume ICM 1998 III*. 267–278.
 [10'] Threshold selection in transform shrinkage. In *Statistical Challenges in Astronomy*, Eric D. Feigelson & G. Jogesh Babu (eds.) New York: Springer-Verlag 2003. 343–360.

Refereed Publications in Medical Journals

- [M1] Prostate specific antigen in the diagnosis and treatment of adenocarcinoma of the prostate: II. Radical Prostatectomy Patients. T.A. Stamey, J.N. Kabalin, J.E. McNeal, I.M. Johnstone, F. Freiha, M. Ferrari, E. Redwine. *J. Urology*, **141** (1989), 1076–1083.
 [M2] Zidovudine susceptibility testing of human immunodeficiency virus type 1 (HIV) clinical isolates. R.W. Shafer, M.J. Kozal, D.A. Katzenstein, W.H. Lipil, I.M. Johnstone, T.C. Merigan. *J. Virologic Methods*, **41** (1993), 297–310.

- [M3] A preliminary study of diltiazem in the prevention of coronary artery disease in heart-transplant recipients. J.S. Schroeder, S.Z. Gao, E.L. Alderman, S.A. Hunt, I. Johnstone, D.B. Boothroyd, V. Wiederhold, E.B. Stinson. *New Engl. J. Med.*, **328** (1993), 164–170.
- [M4] The effects of intensive multiple risk factor reduction on coronary atherosclerosis and clinical cardiac events in men and women with coronary artery disease: The Stanford Coronary Risk Intervention Project (SCRIP). W.L. Haskell, E.L. Alderman, J.M. Fair, D.J. Maron, S.F. Mackey, H.R. Superko, P.T. Williams, I.M. Johnstone, M.A. Champagne, R.M. Krauss, J.W. Farquhar. *Circulation*, **89** (1994), 975–90.
- [M5] Radiation-induced damage, repair and exchange formation in different chromosomes of human fibroblasts determined by fluorescence in situ hybridization. M.S. Kovacs, J.W. Evans, I.M. Johnstone and J.M. Brown. *Radiation Research*, **137** (1994), 34–43.
- [M6] The anatomy of the posterior communicating artery as a risk factor for ischemic cerebral infarction. D.F. Schomer, M.P. Marks, G.K. Steinberg, I.M. Johnstone, D.B. Boothroyd, M.R. Ross, N.J. Pelc, D.R. Enzmann. *New Engl. J. Med.*, **330** (1994), 1565–1570.
- [M7] Prediction of prostate cancer volume using prostate specific antigen levels, transrectal prostatic ultrasound, and systematic sextant biopsies. M.K. Terris, D.J. Haney, I.M. Johnstone, J.E. McNeal, T.A. Stamey. *Urology*, **45** (1995), 75–80.
- [M8] The influence of volumetric tumor doubling time, DNA Ploidy, and histologic grade on the survival of patients with intracranial astrocytomas. F.G. Blankenberg, R.L. Teplitz, W. Ellis, M.S. Salamat, B.H. Min, L. Hall, D.B. Boothroyd, I.M. Johnstone, D.R. Enzmann. *Amer. J. Neuroradiology*, **16** (1995), 1001–1012.
- [M9] Serum prostate-specific antigen and the biologic progression of prostate cancer. J.N. Kabalin, J.E. McNeal, I.M. Johnstone, T.A. Stamey. *Urology*, **46** (1995), 65–70.
- [M10] Initial functional and economic status of patients with multivessel coronary artery disease randomized in the Bypass Angioplasty Revascularization Investigation (BARI). M.A. Hlatky, E.D. Charles, F. Nobrega, K. Gelman, I. Johnstone, J. Melvin, T. Ryan, R. Wiens, B. Pitt, G. Reeder, H. Smith, P. Whitlow, G. Zorn, D.J. Frid, D.B. Mark, and the BARI Study Group. *Amer. J. Cardiology*, **75** (1995), 34C–41C.
- [M11] Risk factors for the development of obliterative bronchiolitis after lung transplantation. R.E. Girgis, I-Ping Tu, G.J. Berry, H. Reichensperner, V.G. Valentine, J.V. Conte, A. Ting, I. Johnstone, J. Miller, R.C. Robbins, B.A. Reitz, J. Theodore. *J. of Heart and Lung Transplantation*. **15**, (1996) 1200–1208.
- [M12] Medical care costs and quality of life after randomization to coronary angioplasty or coronary bypass surgery. M.A. Hlatky, W.J. Rogers, I. Johnstone, D. Boothroyd, M.M. Brooks, B. Pitt, G. Reeder, T. Ryan, H. Smith, P. Whitlow, R. Wiens, D.B. Mark. *New Engl. J. Med.*, **336** (1997), 92–99.
- [M13] Prostate-specific antigen doubling times in patients who have failed radical prostatectomy: correlation with histologic characteristics of the primary cancer. R.S. Pruthi, I. Johnstone, I-Ping Tu, T.A. Stamey. *Urology*, **49** (1997), 737–742.
- [M14] Long-term cost-effectiveness of alternative management strategies for patients with life-threatening ventricular arrhythmias. M.A. Hlatky, D.B. Boothroyd, I.M. John-

- stone, F.I. Marcus, E. Hahn, V. Hartz, J.W. Mason. *J. Clinical Epidemiology*, **50** (1997), 185–193.
- [M15] Cognitive function 5 years after randomization to coronary angioplasty or coronary artery bypass graft surgery. M.A. Hlatky, C. Bacon, D. Boothroyd, E. Mahanna, J.G. Reeves, M.F. Newman, I. Johnstone, C. Winston, M.M. Brooks, A.D. Rosen, D.B. Mark, B. Pitt, W. Rogers, R. Wiens, J.A. Blumenthal. *Circulation*, **96**(9 Suppl) (1997) II-11–15.
- [M16] C.F. Beaulieu, S. Napel, B.L. Daniel, I.Y. Ch'en, G.D. Rubin, I.M. Johnstone, R.B. Jeffrey Jr. Detection of colonic polyps in a phantom model: implications for virtual colonoscopy data acquisition. *J. Comput Assist Tomogr* (1998) **22** 656–663.
- [M17] Biological Determinants of Cancer Progression in Men with Prostate Cancer. T.A. Stamey, J.E. McNeal, C.M. Yemoto, B.M. Sigal, I.M. Johnstone. *J.A.M.A.* **281** (1999), 1395–1400.
- [M18] Effect of Ageing on Morphologic and Clinical Predictors of Prostate Cancer Progression. T.A. Stamey, M. Raimondo, C.M. Yemoto, J.E. McNeal, I.M. Johnstone. *The Prostate Journal* **2** (2000), 157–162.
- [M19] Prostate Cancer is Highly Predictable: A Prognostic Equation Based on All Morphological Variables in Radical Prostatectomy Specimens. T.A. Stamey, C.M. Yemoto, J.E. McNeal, B.M. Sigal, I.M. Johnstone. *J. Urology* **163** (2000), 1155–1160.
- [M20] Preoperative Serum Prostate Specific Antigen Levels between 2 and 22 ng/ml correlate poorly with Post-Radical Prostatectomy Cancer Morphology: PSA Cure Rates appear constant between 2 and 9 ng/ml. T. A. Stamey, I.M. Johnstone, J.E. McNeal, A. Y. Lu, C.M. Yemoto. *J. Urology*. **167** (2002), 103–111.
- [M21] Economic Evaluation in Long-Term Clinical Trials. Mark A. Hlatky, Derek B. Boothroyd and Iain M. Johnstone. *Statistics in Medicine*. **21** (2002), 2879–88.
- [M22] *Helicobacter pylori* Eradication and Gastric Preneoplastic Conditions: A Randomized, Double-Blind, Placebo-Controlled Trial. C. Ley, A. Mohar, J. Guarner, R. Herrera-Goepfert, L. Sanchez Figueroa, D. Halperin, I.M. Johnstone and J. Parsonnet. *Cancer Epidemiology, Biomarkers & Prevention*. **13** (2004) 4–10.