

PROBABILITY, ANALYSIS AND NUMBER THEORY

Papers in honour of
N. H. Bingham

Edited by
C. M. GOLDIE and A. MIJATOVIĆ



ADVANCES IN APPLIED PROBABILITY
SPECIAL VOLUME 48A (2016)

**PROBABILITY,
ANALYSIS AND
NUMBER THEORY**



PROBABILITY, ANALYSIS AND NUMBER THEORY

Papers in honour of
N. H. Bingham

Edited by
C. M. GOLDIE and A. MIJATOVIĆ



ADVANCES IN APPLIED PROBABILITY
SPECIAL VOLUME 48A (2016)

Published by
Applied Probability Trust
School of Mathematics and Statistics
The University of Sheffield
Sheffield S3 7RH
UK

www.appliedprobability.org

© Applied Probability Trust 2016

A catalogue record for this book is available from the British Library

ISBN 978-0-902016-10-1

ISSN 0001-8678

Printed at Bell & Bain Ltd, UK

Frontispiece: Nicholas and Cecilie (Nick and Cec), July 2015

CONTENTS

Preface	vii
Publications of N. H. Bingham	ix
N. H. BINGHAM. Probability unfolding, 1965–2015	1
SAYAN BANERJEE AND WILFRID S. KENDALL. Coupling the Kolmogorov diffusion: maximality and efficiency considerations	15
JEAN BERTOIN AND ALEXANDER R. WATSON. Probabilistic aspects of critical growth-fragmentation equations	37
R. DE LA BRETÈCHE AND G. TENENBAUM. Sur les processus arithmétiques liés aux diviseurs	63
PAUL EMBRECHTS, ERWAN KOCH AND CHRISTIAN ROBERT. Space–time max-stable models with spectral separability	77
NICHOLAS GEORGIU, MIKHAIL V. MENSHIKOV, ALEKSANDAR MIJATOVIĆ AND ANDREW R. WADE. Anomalous recurrence properties of many-dimensional zero-drift random walks	99
MILES B. GIETZMANN AND ADAM J. OSTASZEWSKI. The sound of silence: equilibrium filtering and optimal censoring in financial markets	119
GEOFFREY R. GRIMMETT, SVANTE JANSON AND JAMES R. NORRIS. Influence in product spaces	145
EMMA L. HORTON AND ANDREAS E. KYPRIANOU. More on hypergeometric Lévy processes	153
RÜDIGER KIESEL, MAGDA MROZ AND ULRICH STADTMÜLLER. Time-varying copula models for financial time series	159
OLEG KLESOV AND ULRICH STADTMÜLLER. Existence of moments of a counting process and convergence in multidimensional time	181
PATRICK J. LAUB, SØREN ASMUSSEN, JENS L. JENSEN AND LEONARDO ROJAS-NANDAYAPA. Approximating the Laplace transform of the sum of dependent lognormals	203
MUNEYA MATSUI AND THOMAS MIKOSCH. The extremogram and the cross-extremogram for a bivariate GARCH(1, 1) process	217
ALEKSANDAR MIJATOVIĆ AND VLADISLAV VYSOTSKY. On the weak limit law of the maximal uniform k -spacing	235
ADAM J. OSTASZEWSKI. Stable laws and Beurling kernels	239
OMIROS PAPASPILIOPOULOS, GARETH O. ROBERTS AND KASIA B. TAYLOR. Exact sampling of diffusions with a discontinuity in the drift	249
E. J. G. PITMAN AND JIM PITMAN. A direct approach to the stable distributions ...	261
SIDNEY I. RESNICK AND GENNADY SAMORODNITSKY. Asymptotic normality of degree counts in a preferential attachment model	283

PREFACE

This special volume of *Advances in Applied Probability* is a Festschrift for N. H. (Nick) Bingham. Nick's 70th birthday was on 19th March 2015, and Charles Goldie, Rüdiger Kiesel and Aleksandar Mijatović organised a conference, *Limit Theorems in Probability*, the following week in honour of the occasion. It proved no problem at all to attract the most distinguished speakers from far and near, and the speakers' friendship with Nick and their relationship with his work ensured a coherent and productive four-day meeting, which we held at Imperial College London under the auspices of the Imperial Probability Centre, with the assistance of Patrick Kelly.

It was our intention from the start to follow the conference with a Festschrift with a wider theme than that of the conference, reflecting the great breadth of Nick's work. Thus while many of the contributions to this volume were prefigured in the conference, we have also been lucky in attracting papers from beyond the conference's theme, and the volume's title, *Probability, Analysis and Number Theory*, recognises that. One paper, that by A. J. Ostaszewski on pages 239–248, even arose as a complement to another, namely to that by E. J. G. and J. W. Pitman on pages 261–282.

Nick's own contribution here is autobiographical and historical, and who better than Nick to give an account of the many areas of mathematics to which he has contributed, going well beyond the probability of his title and reflecting the ever increasing pervasiveness of his and our beloved subject. We therefore attempt no overview of his mathematical career but have attempted to compile the evidence for it in the shape of his Bibliography, immediately following this Preface. (Even so, that will become out of date, as Nick continues as productive as ever.) We decided to list Nick's book reviews, as they are evaluative, but to omit his 302 (to date) reviews of papers in *Mathematical Reviews*. They may readily be listed, given online access to MathSciNet.

Nick had a long stint as Coordinating Editor for *Advances in Applied Probability*, and it is for that reason that this is a special volume of that journal rather than of the *Journal of Applied Probability*. The last special volume of *Advances* (actually Special Supplement, December 1986) was *Analytic and Geometric Stochastics*, the Festschrift for Harry Reuter, whose memory Nick and we revere, and we thank the Applied Probability Trust especially for allowing us the privilege of succeeding it.

All contributions to this special volume were refereed, and we are most grateful to the referees for their freely given and often very productive services, and to them and the authors for efficiency and friendly cooperation which has made the task of the editors unburdensome. The support and the skills of Dr Emma Talib, Executive Editor of the Trust, were crucial for the success of the project for the volume and are acknowledged with warm appreciation. Our thanks also to Susan Oakes for detail on Nick's contributions to London Mathematical Society *Newsletters*.

June 2016

CHARLES M. GOLDIE
ALEKSANDAR MIJATOVIĆ

PUBLICATIONS OF N. H. BINGHAM

Books

- [BGT1] BINGHAM, N. H., GOLDIE, C. M. AND TEUGELS, J. L. (1987). *Regular Variation* (Encyclopedia Math. Appl. **27**). Cambridge University Press.
- [BGT2] BINGHAM, N. H., GOLDIE, C. M. AND TEUGELS, J. L. (1989). *Regular Variation* (Encyclopedia Math. Appl. **27**), pbk. edn. Cambridge University Press.
- [BB] BARLOW, M. T. AND BINGHAM, N. H. (eds) (1991). *Stochastic Analysis: Proceedings of the Durham Symposium on Stochastic Analysis, 1990* (London Math. Soc. Lecture Note Ser. **167**). Cambridge University Press.
- [BK1] BINGHAM, N. H. AND KIESEL, R. (1998). *Risk-Neutral Valuation: Pricing and Hedging of Financial Derivatives*. Springer, London.
- [BK2] BINGHAM, N. H. AND KIESEL, R. (2004). *Risk-Neutral Valuation: Pricing and Hedging of Financial Derivatives*, 2nd edn. Springer, London.
- [BE] BINGHAM, N. H. AND EVSTIGNEEV, I. V. (eds) (2008). *Special Issue: A Festschrift for Priscilla Greenwood. Stochastics* **80**, Issue 2–3, Taylor & Francis, Abingdon, pp. 103–298.
- [BG] BINGHAM, N. H. AND GOLDIE, C. M. (eds) (2010). *Probability and Mathematical Genetics: Papers in Honour of Sir John Kingman*. (London Math. Soc. Lecture Note Ser. **378**). Cambridge University Press.
- [BF] BINGHAM, N. H. AND FRY, J. M. (2010). *Regression—Linear Models in Statistics* (Springer Undergrad. Math. Ser.). Springer, London.

Papers

- [P1] BINGHAM, N. H. AND HAMMERSLEY, J. M. (1967). On a conjecture of Rademacher, Dickson, and Plotkin. *J. Combinatorial Theory* **3**, 182–190.
- [P2] BINGHAM, N. H. (1971). Limit theorems for occupation times of Markov processes. *Z. Wahrscheinlichkeitsth.* **17**, 1–22.
- [P3] BINGHAM, N. H. (1971). Factorization theory and domains of attraction for generalized convolution algebras. *Proc. London Math. Soc. (3)* **23**, 16–30.
- [P4] BINGHAM, N. H. (1972). Limit theorems for regenerative phenomena, recurrent events and renewal theory. *Z. Wahrscheinlichkeitsth.* **21**, 20–44.
- [P5] BINGHAM, N. H. (1972). Random walk on spheres. *Z. Wahrscheinlichkeitsth.* **22**, 169–192.
- [P6] BINGHAM, N. H. (1972). A Tauberian theorem for integral transforms of Hankel type. *J. London Math. Soc. (2)* **5**, 493–503.
- [P7] BINGHAM, N. H. (1972). Integral representations for ultraspherical polynomials. *J. London Math. Soc. (2)* **6**, 1–11.
- [P8] BINGHAM, N. H. (1973). Limit theorems for a class of Markov processes: some thoughts on a postcard from Kingman. In *Stochastic Analysis: A Tribute to the Memory of Rollo Davidson*, eds D. G. Kendall and E. F. Harding, John Wiley, London, pp. 266–293.
- [P9] BINGHAM, N. H. (1973). Positive definite functions on spheres. *Proc. Camb. Phil. Soc.* **73**, 145–156.
- [P10] BINGHAM, N. H. (1973). Maxima of sums of random variables and suprema of stable processes. *Z. Wahrscheinlichkeitsth.* **26**, 273–296.
- [P11] BINGHAM, N. H. (1973). Limit theorems in fluctuation theory. *Adv. Appl. Prob.* **5**, 554–569.
- [P12] BINGHAM, N. H. AND DONEY, R. A. (1974). Asymptotic properties of supercritical branching processes I: the Galton-Watson process. *Adv. Appl. Prob.* **6**, 711–731.
- [P13] BINGHAM, N. H. AND DONEY, R. A. (1975). Asymptotic properties of supercritical branching processes II: Crump-Mode and Jirina processes. *Adv. Appl. Prob.* **7**, 66–82.
- [P14] BINGHAM, N. H. AND TEUGELS, J. L. (1975). Duality for regularly varying functions. *Quart. J. Math. Oxford Ser. (2)* **26**, 333–353.
- [P15] BINGHAM, N. H. (1975). Fluctuation theory in continuous time. *Adv. Appl. Prob.* **7**, 705–766.
- [P16] BINGHAM, N. H. (1976). Continuous branching processes and spectral positivity. *Stoch. Process. Appl.* **4**, 217–242.

- [P17] ASKEY, R. AND BINGHAM, N. H. (1976/77). Gaussian processes on compact symmetric spaces. *Z. Wahrscheinlichkeitsth.* **37**, 127–143.
- [P18] BINGHAM, N. H. (1978). Tauberian theorems for Jacobi series. *Proc. London Math. Soc. (3)* **36**, 285–309.
- [P19] BINGHAM, N. H. (1978). Integrability theorems for convolutions. *J. London Math. Soc. (2)* **18**, 502–510.
- [P20] BINGHAM, N. H. AND TEUGELS, J. L. (1979). Tauberian theorems and regular variation. *Nieuw Arch. Wiskd.* (3) **27**, 153–186.
- [P21] BINGHAM, N. H. (1979). Integrability theorems for Jacobi series. *Publ. Inst. Math. (Beograd) (N.S.)* **26(40)**, 45–56.
- [P22] BINGHAM, N. H. AND TEUGELS, J. L. (1980). Mercerian and Tauberian theorems for differences. *Math. Z.* **170**, 247–262.
- [P23] BINGHAM, N. H. (1980). Wiener-Hopf and related methods in probability. In *Aspects of Contemporary Complex Analysis* (Durham, 1979), eds D. A. Brannan and J. G. Clunie, Academic Press, London, pp. 369–375.
- [P24] BINGHAM, N. H. (1981). Tauberian theorems and the central limit theorem. *Ann. Prob.* **9**, 221–231.
- [P25] BINGHAM, N. H. AND TEUGELS, J. L. (1981). Conditions implying domains of attraction. In *Proceedings of the Sixth Conference on Probability Theory* (Braşov, 1979), eds B. Bereanu *et al.*, Editura Academiei Republicii Socialiste România, Bucharest, pp. 23–34.
- [P26] BINGHAM, N. H. AND GOLDIE, C. M. (1982). Probabilistic and deterministic averaging. *Trans. Amer. Math. Soc.* **269**, 453–480.
- [P27] BINGHAM, N. H. AND GOLDIE, C. M. (1982). Extensions of regular variation, I: uniformity and quantifiers. *Proc. London Math. Soc. (3)* **44**, 473–496.
- [P28] BINGHAM, N. H. AND GOLDIE, C. M. (1982). Extensions of regular variation, II: representations and indices. *Proc. London Math. Soc. (3)* **44**, 497–534.
- [P29] BINGHAM, N. H. AND HAWKES, J. (1983). On limit theorems for occupation times. In *Probability, Statistics and Analysis* (D. G. Kendall Festschrift; London Math. Soc. Lecture Note Ser. **79**), eds J. F. C. Kingman and G. E. H. Reuter, Cambridge University Press, pp. 46–62.
- [P30] BINGHAM, N. H. AND GOLDIE, C. M. (1983). On one-sided Tauberian conditions. *Analysis* **3**, 159–188.
- [P31] BINGHAM, N. H. (1984). On a theorem of Kłosowska about generalised convolutions. *Colloq. Math.* **48**, 117–125.
- [P32] BINGHAM, N. H. (1984). On Borel and Euler summability. *J. London Math. Soc. (2)* **29**, 141–146.
- [P33] BINGHAM, N. H. (1984). On Valiron and circle convergence. *Math. Z.* **186**, 273–286.
- [P34] BINGHAM, N. H. (1984). Tauberian theorems for summability methods of random-walk type. *J. London Math. Soc. (2)* **30**, 281–287.
- [P35] BINGHAM, N. H. AND MAEJIMA, M. (1985). Summability methods and almost sure convergence. *Z. Wahrscheinlichkeitsth.* **68**, 383–392.
- [P36] BINGHAM, N. H. (1985). On Tauberian theorems in probability theory. *Nieuw Arch. Wiskd.* (4) **3**, 157–166.
- [P37] BINGHAM, N. H. AND TENENBAUM, G. (1986). Riesz and Valiron means and fractional moments. *Math. Proc. Camb. Phil. Soc.* **99**, 143–149.
- [P38] BINGHAM, N. H. (1986). Variants on the law of the iterated logarithm. *Bull. London Math. Soc.* **18**, 433–467.
- [P39] BINGHAM, N. H. (1986). Summability methods and dependent strong laws. In *Dependence in Probability and Statistics* (Oberwolfach, 1985; Progress Prob. Statist. **11**), eds E. Eberlein and M. S. Taqqu, Birkhäuser, Boston, MA, pp. 291–300.
- [P40] BINGHAM, N. H. (1986). Extensions of the strong law. In *Analytic and Geometric Stochastics: Papers in Honour of G. E. H. Reuter* (Adv. Appl. Prob. Spec. Suppl.), eds D. G. Kendall *et al.*, Applied Probability Trust, Sheffield, pp. 27–36.
- [P41] BINGHAM, N. H. AND DONEY, R. A. (1988). On higher-dimensional analogues of the arc-sine law. *J. Appl. Prob.* **25**, 120–131. (Correction: ZHOU, Y. **45** (2008), 1204–1206.)
- [P42] BINGHAM, N. H. (1988). On the limit of a supercritical branching process. In *A Celebration of Applied Probability* (J. Appl. Prob. Spec. Vol. **25A**), ed. J. Gani, Applied Probability Trust, Sheffield, pp. 215–228.
- [P43] BINGHAM, N. H. AND GOLDIE, C. M. (1988). Riesz means and self-neglecting functions. *Math. Z.* **199**, 443–454.
- [P44] BINGHAM, N. H. (1988). Tauberian theorems for Jakimovski and Karamata-Stirling methods. *Mathematika* **35**, 216–224.
- [P45] BINGHAM, N. H. (1989). Tauberian theorems in probability theory. In *Probability Measures on Groups, IX* (Oberwolfach, 1988; Lecture Notes Math. **1379**), ed. H. Heyer, Springer, Berlin, pp. 6–20.
- [P46] BINGHAM, N. H. (1989). Moving averages. In *Almost Everywhere Convergence* (Columbus, OH, 1988), eds G. A. Edgar and L. Sucheston, Academic Press, Boston, MA, pp. 131–144.
- [P47] BINGHAM, N. H. (1989). The work of A. N. Kolmogorov on strong limit theorems. *Teor. Veroyat. Primen.* **34**, 152–164.

- [P48] KENDALL, D. G., BATCHELOR, G. K., BINGHAM, N. H., HAYMAN, W. K., HYLAND, J. M. E., LORENTZ, G. G., MOFFATT, H. K., PARRY, W., RAZBOROV, A. A., ROBINSON, C. A. AND WHITTLE, P. (1990). Obituary: Andreĭ Nikolaevich Kolmogorov (1903–1987). *Bull. London Math. Soc.* **22**, 31–100.
- [P49] BINGHAM, N. H. AND STADTMÜLLER, U. (1990). Jakimovski methods and almost-sure convergence. In *Disorder in Physical Systems* (J. M. Hammersley Festschrift), eds G. R. Grimmett and D. J. A. Welsh, Oxford University Press, New York, pp. 5–17.
- [P50] BINGHAM, N. H. (1990). Regular variation in probability theory. *Publ. Inst. Math. (Beograd) (N.S.)* **48(62)**, 169–180. (Proc. Third Annual Meeting of the International Workshop in Analysis and its Applications.)
- [P51] BINGHAM, N. H. AND LUTHER, W. J. (1991). Ein Tauberscher Restgliedsatz für Jacobi-Reihen. *Arch. Math. (Basel)* **57**, 53–60.
- [P52] BINGHAM, N. H. (1991). Fluctuation theory for the Ehrenfest urn. *Adv. Appl. Prob.* **23**, 598–611.
- [P53] BINGHAM, N. H. AND ROGERS, L. C. G. (1991). Summability methods and almost-sure convergence. In *Almost Everywhere Convergence, II* (Evanston, IL, 1989), eds A. Bellow and R. L. Jones, Academic Press, Boston, MA, pp. 69–83.
- [P54] BIGGINS, J. D. AND BINGHAM, N. H. (1991). Near-constancy phenomena in branching processes. *Math. Proc. Camb. Phil. Soc.* **110**, 545–558.
- [P55] BINGHAM, N. H. (1991). The work of Alfréd Rényi: some aspects in probability and number theory. *Studia Sci. Math. Hung.* **26**, 165–183.
- [P56] BINGHAM, N. H. (1992). Obituary: G. E. H. Reuter. *J. Appl. Prob.* **29**, 754–757.
- [P57] BIGGINS, J. D. AND BINGHAM, N. H. (1993). Large deviations in the supercritical branching process. *Adv. Appl. Prob.* **25**, 757–772.
- [P58] BINGHAM, N. H. (1994). The work of Lajos Takács on probability theory. In *Studies in Applied Probability: Essays in Honour of Lajos Takács* (J. Appl. Prob. Spec. Vol. **31A**), eds J. Galambos and J. Gani, Applied Probability Trust, Sheffield, pp. 29–39.
- [P59] KENDALL, D. G., BINGHAM, N. H. AND SONDEHEIMER, E. H. (1995). Obituary: Gerd Edzard Harry Reuter. *Bull. London Math. Soc.* **27**, 177–188.
- [P60] BINGHAM, N. H. (1995). The sample mid-range and symmetrized extremal laws. *Statist. Prob. Lett.* **23**, 281–288.
- [P61] BINGHAM, N. H. (1996). The sample mid-range and interquartiles. *Statist. Prob. Lett.* **27**, 131–136.
- [P62] BINGHAM, N. H. (1996). The strong arc-sine law in higher dimensions. In *Convergence in Ergodic Theory and Probability* (Columbus, OH, 1993; Ohio State Uni. Math. Res. Inst. Publ. **5**), eds V. Bergelson *et al.*, Walter de Gruyter, Berlin, pp. 111–116.
- [P63] BINGHAM, N. H. (1996). A conversation with David Kendall. *Statist. Sci.* **11**, 159–188. (See also SWITZER, P. (1997). Editor's note. *Statist. Sci.* **12**, 220.)
- [P64] BINGHAM, N. H. AND HOLGATE, P. (1997). Studies in the history of probability and statistics XLV. The late Philip Holgate's paper 'Independent functions: Probability and analysis in Poland between the Wars'. *Biometrika* **84**, 159–173. (Bingham's introduction pp. 159–160; Holgate's paper pp. 161–173.)
- [P65] BINGHAM, N. H. AND INOUE, A. (1997). The Drasin-Shea-Jordan theorem for Fourier and Hankel transforms. *Quart. J. Math. Oxford Ser. (2)* **48**, 279–307.
- [P66] BINGHAM, N. H. AND INOUE, A. (1997). An Abel-Tauber theorem for Hankel transforms. In *Trends in Probability and Related Analysis* (Taipei, 1996), eds N. Kono and N.-R. Shieh, World Scientific, River Edge, NJ, pp. 83–90.
- [P67] BINGHAM, N. H. AND DUNHAM, B. (1997). Estimating diffusion coefficients from count data: Einstein-Smoluchowski theory revisited. *Ann. Inst. Statist. Math.* **49**, 667–679.
- [P68] BRÄKER, H., HSING, T. AND BINGHAM, N. H. (1998). On the Hausdorff distance between a convex set and an interior random convex hull. *Adv. Appl. Prob.* **30**, 295–316.
- [P69] BINGHAM, N. H. (1998). Fluctuations. *Math. Sci.* **23**, 63–73.
- [P70] BINGHAM, N. H. AND PITTS, S. M. (1999). Non-parametric estimation for the $M/G/\infty$ queue. *Ann. Inst. Statist. Math.* **51**, 71–97.
- [P71] BINGHAM, N. H. AND PITTS, S. M. (1999). Nonparametric inference from $M/G/1$ busy periods. *Commun. Statist. Stoch. Models* **15**, 247–272.
- [P72] BINGHAM, N. H. AND INOUE, A. (1999). Ratio Mercerian theorems with applications to Hankel and Fourier transforms. *Proc. London Math. Soc. (3)* **79**, 626–648.
- [P73] BINGHAM, N. H. (2000). Studies in the history of probability and statistics. XLVI. Measure into probability: from Lebesgue to Kolmogorov. *Biometrika* **87**, 145–156.
- [P74] BINGHAM, N. H. (2000). Obituary: Philip Holgate (1934–1993). *Bull. London Math. Soc.* **32**, 484–492.
- [P75] BINGHAM, N. H. AND INOUE, A. (2000). Extension of the Drasin-Shea-Jordan theorem. *J. Math. Soc. Japan* **52**, 545–559.
- [P76] BINGHAM, N. H. AND INOUE, A. (2000). Abelian, Tauberian, and Mercerian theorems for arithmetic sums. *J. Math. Anal. Appl.* **250**, 465–493.

- [P77] BINGHAM, N. H. AND INOUE, A. (2000). Tauberian and Mercerian theorems for systems of kernels. *J. Math. Anal. Appl.* **252**, 177–197.
- [P78] BINGHAM, N. H. (2001). Random walk and fluctuation theory. In *Stochastic Processes: Theory and Methods* (Handbook Statist. **19**), eds D. N. Shanbhag and C. R. Rao, North-Holland, Amsterdam, pp. 171–213.
- [P79] BINGHAM, N. H. (2001). Probability and statistics: some thoughts at the turn of the millennium. In *Probability Theory* (Roskilde, 1998; Synthese Library **297**), eds V. F. Hendricks *et al.*, Kluwer, Dordrecht, pp. 15–49.
- [P80] BINGHAM, N. H. AND KIESEL, R. (2001). Modelling asset returns with hyperbolic distributions. In *Return Distributions in Finance*, eds J. Knight and S. E. Satchell, Butterworth-Heinemann, Oxford, pp. 1–20.
- [P81] BINGHAM, N. AND KIESEL, R. (2001). Hyperbolic and semi-parametric models in finance. In *Disordered and Complex Systems* (London, 2000; AIP Conf. Proc. **553**), eds P. Sollich *et al.*, American Institute of Physics, Melville, NY, pp. 275–280.
- [P82] BINGHAM, N. H. AND KIESEL, R. (2002). Semi-parametric modelling in finance: theoretical foundations. *Quant. Finance* **2**, 241–250.
- [P83] BINGHAM, N. H., KIESEL, R. AND SCHMIDT, R. (2003). A semi-parametric approach to risk management. *Quant. Finance* **3**, 426–441.
- [P84] BINGHAM, N. H. AND NILI SANI, H. R. (2004). Summability methods and negatively associated random variables. In *Stochastic Methods and Their Applications: Papers in Honour of Chris Heyde* (J. Appl. Prob. Spec. Vol. **41A**), eds J. Gani and E. Seneta, Applied Probability Trust, Sheffield, pp. 231–238.
- [P85] BINGHAM, N. H. (2005). Doob: a half-century on. *J. Appl. Prob.* **42**, 257–266.
- [P86] BINGHAM, N. H., GOLDIE, C. M. AND OMEY, E. (2006). Regularly varying probability densities. *Publ. Inst. Math. (Beograd) (N.S.)* **80(94)**, 47–57.
- [P87] BINGHAM, N. H. AND SCHMIDT, R. (2006). Interplay between distributional and temporal dependence. An empirical study with high-frequency asset returns. In *From Stochastic Calculus to Mathematical Finance* (A. N. Shiryaev Festschrift), eds Yu. Kabanov *et al.*, Springer, Berlin, pp. 69–90.
- [P88] BINGHAM, N. H. (2006). Lévy processes and self-decomposability in finance. *Prob. Math. Statist.* **26**, 367–378.
- [P89] BINGHAM, N. H. (2006). Heroic periods. *Math. Sci. Hum. Math. Soc. Sci.* 31–42 (2007).
- [P90] BINGHAM, N. H. (2007). Regular variation and probability: the early years. *J. Comput. Appl. Math.* **200**, 357–363.
- [P91] BINGHAM, N. H. (2008). Tauberian theorems and large deviations. *Stochastics* **80**, 143–149. (Special Issue: A Festschrift for Priscilla Greenwood.)
- [P92] BINGHAM, N. H. AND HAYMAN, W. K. (2008). Sir Harry Raymond Pitt, 3 June 1914–8 October 2005, elected FRS 1957. *Biogr. Memoirs Fellows Roy. Soc.* **54**, 258–274. Reprinted as *Bull. London Math. Soc.* **42**(2010), 553–567.
- [P93] BINGHAM, N. H. (2008). The crash of 2008: a mathematician's view. *Significance* **5**, 173–175.
- [P94] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2008). Generic subadditive functions. *Proc. Amer. Math. Soc.* **136**, 4257–4266.
- [P95] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2009). Very slowly varying functions. II. *Colloq. Math.* **116**, 105–117.
- [P96] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2009). Beyond Lebesgue and Baire: generic regular variation. *Colloq. Math.* **116**, 119–138.
- [P97] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2009). The index theorem of topological regular variation and its applications. *J. Math. Anal. Appl.* **358**, 238–248.
- [P98] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2009). Infinite combinatorics and the foundations of regular variation. *J. Math. Anal. Appl.* **360**, 518–529.
- [P99] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2009). Automatic continuity: subadditivity, convexity, uniformity. *Aequationes Math.* **78**, 257–270.
- [P100] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2009). Infinite combinatorics in function spaces: category methods. *Publ. Inst. Math. (Beograd) (N.S.)* **86(100)**, 55–73.
- [P101] BINGHAM, N. H. (2009). Five questions. In *Probability and Statistics: 5 Questions*, eds A. Hájek and V. F. Hendricks, Automatic Press/VIP, Copenhagen, pp. 1–11.
- [P102] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2010). Automatic continuity via analytic thinning. *Proc. Amer. Math. Soc.* **138**, 907–919.
- [P103] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2010). Regular variation without limits. *J. Math. Anal. Appl.* **370**, 322–338.
- [P104] BINGHAM, N. H. (2010). Finite additivity versus countable additivity. *J. Électron. Hist. Prob. Statist.* **6**, 1–35.
- [P105] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2010). Topological regular variation: I. Slow variation. *Topology Appl.* **157**, 1999–2013.
- [P106] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2010). Topological regular variation: II. The fundamental theorems. *Topology Appl.* **157**, 2014–2023.

- [P107] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2010). Topological regular variation: III. Regular variation. *Topology Appl.* **157**, 2024–2037.
- [P108] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2010). Kingman, category and combinatorics. In *Probability and Mathematical Genetics: Papers in Honour of Sir John Kingman* (London Math. Soc. Lecture Note Ser. **378**), eds N. H. Bingham and C. M. Goldie, Cambridge University Press, pp. 135–168.
- [P109] BINGHAM, N. H., FRY, J. M. AND KIESEL, R. (2010). Multivariate elliptic processes. *Stat. Neerl.* **64**, 352–366.
- [P110] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2010). Normed versus topological groups: dichotomy and duality. *Dissertationes Math. (Rozprawy Mat.)* **472**, 138.
- [P111] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2010). Beyond Lebesgue and Baire II: bitopology and measure-category duality. *Colloq. Math.* **121**, 225–238.
- [P112] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2011). Dichotomy and infinite combinatorics: the theorems of Steinhaus and Ostrowski. *Math. Proc. Camb. Phil. Soc.* **150**, 1–22.
- [P113] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2011). Homotopy and the Kestelman-Borwein-Ditor theorem. *Canad. Math. Bull.* **54**, 12–20.
- [P114] BINGHAM, N. H. (2011). Józef Marcinkiewicz: analysis and probability. In *Marcinkiewicz Centenary Volume* (Banach Center Publ. **95**), eds M. Nawrocki and W. Wnuk, Polish Acad. Sci. Inst. Math., Warsaw, pp. 27–44.
- [P115] BINGHAM, N. H., INOUE, A. AND KASAHARA, Y. (2012). An explicit representation of Verblunsky coefficients. *Statist. Prob. Lett.* **82**, 403–410.
- [P116] BINGHAM, N. H. (2012). Szegő's theorem and its probabilistic descendants. *Prob. Surveys* **9**, 287–324.
- [P117] BINGHAM, N. H. (2012). Multivariate prediction and matrix Szegő theory. *Prob. Surveys* **9**, 325–339.
- [P118] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2013). The Steinhaus theorem and regular variation: de Bruijn and after. *Indag. Math. (N.S.)* **24**, 679–692.
- [P119] KASAHARA, Y. AND BINGHAM, N. H. (2014). Verblunsky coefficients and Nehari sequences. *Trans. Amer. Math. Soc.* **366**, 1363–1378.
- [P120] BINGHAM, N. H. (2014). Modelling and prediction of financial time series. *Commun. Statist. Theory Meth.* **43**, 1351–1361.
- [P121] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2014). Beurling slow and regular variation. *Trans. London Math. Soc.* **1**, 29–56.
- [P122] BINGHAM, N. H. (2014). The worldwide influence of the work of B. V. Gnedenko. *Theory Prob. Appl.* **58**, 17–24.
- [P123] BINGHAM, N. H. AND MISSAOUI, B. (2014). Aspects of prediction. In *Celebrating 50 Years of the Applied Probability Trust* (J. Appl. Prob. Spec. Vol. **51A**), eds S. Asmussen *et al.*, Applied Probability Trust, Sheffield, pp. 189–201.
- [P124] BINGHAM, N. H. AND GASHI, B. (2015). Logarithmic moving averages. *J. Math. Anal. Appl.* **421**, 1790–1802.
- [P125] BINGHAM, N. H. (2015). Hardy, Littlewood and probability. *Bull. London Math. Soc.* **47**, 191–202.
- [P126] BINGHAM, N. H. (2015). On scaling and regular variation. *Publ. Inst. Math. (Beograd) (N.S.)* **97(111)**, 161–174.
- [P127] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2015). Cauchy's functional equation and extensions: Goldie's equation and inequality, the Gołab-Schinzel equation and Beurling's equation. *Aequationes Math.* **89**, 1293–1310.
- [P128] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2016). Beurling moving averages and approximate homomorphisms. *Indag. Math. (N.S.)* **27**, 601–633. Fuller version available at <http://arxiv.org/abs/1407.4093v2>.
- [P129] BINGHAM, N. H. (2016). Probability unfolding, 1965–2015. In *Probability, Analysis and Number Theory: Papers in Honour of N. H. Bingham* (Adv. Appl. Prob. Spec. Vol. **48A**), eds C. M. Goldie and A. Mijatović, Applied Probability Trust, Sheffield, pp. 1–13.
- [P130] BINGHAM, N. H. (2016). The work of Ragnar Norberg. To appear in *Risk and Stochastics (Ragnar Norberg Festschrift)*, ed. P. M. Barrieu, Imperial College Press, London.
- [P131] BINGHAM, N. H. (2016). Riesz means and Beurling moving averages. To appear in *Risk and Stochastics (Ragnar Norberg Festschrift)*, ed. P. M. Barrieu, Imperial College Press, London.
- [P132] KASAHARA, Y. AND BINGHAM, N. H. (2016). Coefficient stripping in the matricial Nehari problem. Submitted.
- [P133] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2016). Additivity, subadditivity and linearity: automatic continuity and quantifier weakening. Preprint. Available at <http://arxiv.org/abs/1405.3948v2>.
- [P134] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2016). Category-measure duality: Jensen convexity and Berz sublinearity. Submitted.
- [P135] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2016). Beyond Lebesgue and Baire IV: density topologies and a converse Steinhaus theorem. Submitted.
- [P136] BINGHAM, N. H. AND OSTASZEWSKI, A. J. (2016). Subcontinuity, the Steinhaus property and its converse. Submitted.
- [P137] BINGHAM, N. H. AND GASHI, B. (2016). Voronoi means, moving averages, and power series. In preparation.
- [P138] BINGHAM, N. H. AND GASHI, B. (2016). Beurling conjugate variation. In preparation.
- [P139] BINGHAM, N. H. (2016). Brownian manifolds. To appear in *H. Heyer Festschrift*, ed. D. Applebaum.

Further contributions

- [F1] BINGHAM, N. H. Seconding of vote of thanks for Clifford, P., Green, N. J. B. and Pilling, M. J. (1987). Statistical models of chemical kinetics in liquids. *J. R. Statist. Soc. B, Methodology* **49**, 266–300.
- [F2] BINGHAM, N. H. Discussion contribution to Davison, A. C. and Smith, R. L. (1990). Models for exceedances over high thresholds. *J. R. Statist. Soc. B, Methodology* **52**, 393–442.
- [F3] BINGHAM, N. H. Discussion contribution to Coles, S. G. and Tawn, J. A. (1994). Statistical methods for multivariate extremes: an application to structural design. *J. R. Statist. Soc. C, Appl. Statist.* **43**, 1–48.
- [F4] BRÄKER, H., HSING, T. AND BINGHAM, N. H. (1995). On estimating the boundary of a convex region. In *Proc. 50th Session of the ISI, Beijing, Book 2* (Bull. Internat. Statist. Inst. **56**), pp. 625–635.
- [F5] BINGHAM, N. H. Discussion contribution to Boyle, C. (1998). Organizations selecting people: how the process could be made fairer by the appropriate use of lotteries. *J. R. Statist. Soc. D, Statistician* **47**, 291–321.
- [F6] BINGHAM, N. H. Discussion contribution to Barndorff-Nielsen, O. E., Gill, R. D. and Jupp, P. E. (2003). On quantum statistical inference. *J. R. Statist. Soc. B, Methodology* **65**, 775–816.
- [F7] BINGHAM, N. H. (2004). Young, Alfred (1873–1940): mathematician. In *Oxford Dictionary of National Biography*, Oxford University Press.
- [F8] BINGHAM, N. H. Discussion contribution to Beskos, A., Papaspiliopoulos, O., Roberts, G. O. and Fearnhead, P. (2006). Exact and computationally efficient likelihood-based estimation for discretely observed diffusion processes. *J. R. Statist. Soc. B, Methodology* **68**, 333–382.
- [F9] BINGHAM, N. H. (2003). A. N. Kolmogorov (1903–1987). *Eur. Math. Soc. Newsl.* **49**, 12–13.
- [F10] BINGHAM, N. H. (2004). Midranges—II. In *Encyclopedia of Statistical Sciences*, eds S. Kotz *et al.*, 2nd edn, John Wiley, Chichester.
- [F11] BINGHAM, N. H. (2008). Andrei Nikolaevich Kolmogorov (1903–1987). In *The Princeton Companion to Mathematics*, eds W. T. Gowers *et al.*, Princeton University Press, pp. 814–816.
- [F12] BINGHAM, N. H. AND PESKIR, G. (2008). Optimal stopping and dynamic programming. In *Encyclopedia of Quantitative Risk Analysis and Assessment*, Vol. 3, eds E. L. Melnick and B. S. Everitt, John Wiley, Chichester, pp. 1236–1243.
- [F13] BINGHAM, N. H. AND EVSTIGNEEV, I. V. (2008). Priscilla Greenwood, Queen of Probability. *Stochastics* **80**, 103–113. (Special Issue: A Festschrift for Priscilla Greenwood).
- [F14] BINGHAM, N. H. AND EVSTIGNEEV, I. V. (2009). Cindy Greenwood, Queen of Probability. *IMS Bulletin* **38.1**, 8.
- [F15] BINGHAM, N. H. (2009). Wright, Sir Edward Maitland (1906–2005): mathematician. In *Oxford Dictionary of National Biography*, Oxford University Press.
- [F16] BINGHAM, N. H. (2009). Pitt, Sir Harry Raymond (1914–2005): mathematician and university administrator. In *Oxford Dictionary of National Biography*, Oxford University Press.
- [F17] BINGHAM, N. H. AND GOLDIE, C. M. (2010). Preface. In *Probability and Mathematical Genetics: Papers in Honour of Sir John Kingman* (London Math. Soc. Lecture Note Ser. **378**), eds N. H. Bingham and C. M. Goldie, Cambridge University Press, pp. xv–xvii.
- [F18] BINGHAM, N. H. (2011). Józef Marcinkiewicz—niezwykłych talentów matematyk. Analiza matematyczna i rachunek prawdopodobieństwa [Józef Marcinkiewicz—extraordinarily talented mathematician. Mathematical analysis and probability theory]. In *Józef Marcinkiewicz: genialny matematyk—męczennik Katynia [Józef Marcinkiewicz—mathematical genius, martyr of Katyni]*, eds J. Marciak-Kozłowska and E. Jakimowicz, Wydawnictwo BUK, Białystok, pp. 223–243. Polish translation, by M. Kozłowski, of [P114].
- [F19] BINGHAM, N. H., OSTASZEWSKI, A. J. AND SASANE, A. (2016). Solution to Problem 11877. Submitted.

Book reviews

- [BR1] BINGHAM, N. H. (1973). Review of *Independent and Stationary Sequences of Random Variables* by I. A. Ibragimov and Yu. V. Linnik (Wolters-Noordhoff, Groningen, 1971). *Bull. London Math. Soc.* **5**, 364–365.
- [BR2] BINGHAM, N. H. (1973). Review of *Regenerative Phenomena* by J. F. C. Kingman (John Wiley, London, 1972). *Bull. London Math. Soc.* **5**, 365–366.
- [BR3] BINGHAM, N. H. (c. 1975). Review of *Monotone Transformations and Limit Laws* by A. A. Balkema (Mathematisch Centrum, Amsterdam, 1973). *Math. Rev.* 0334307 (48 #12626).
- [BR4] BINGHAM, N. H. (c. 1978). Review of *Regularly Varying Functions* by E. Seneta (Springer, Berlin, 1976). *Math. Rev.* 0453936 (56 #12189).
- [BR5] BINGHAM, N. H. (1980). Review of *Probability and Measure* by P. Billingsley (John Wiley, New York, 1979). *Math. Rev.* 0534323 (80h:60001).
- [BR6] BINGHAM, N. H. (1982). Review of *Stochastic Storage Processes* by N. U. Prabhu (Springer, New York, 1980). *Math. Rev.* 602329 (82i:60140).

- [BR7] BINGHAM, N. H. (1985). Review of *Probability* by A. N. Shiryaev (Springer, New York, 1984). *Bull. London Math. Soc.* **17**, 111–112.
- [BR8] BINGHAM, N. H. (1985). Review of *Les objets fractals. Forme, hasard et dimension* by B. Mandelbrot (2nd edn, Flammarion, Paris, 1984). *ISI Short Book Reviews* **5**, 17.
- [BR9] BINGHAM, N. H. (1986). Review of *Brownian Motion and Stochastic Flow Systems* by J. M. Harrison (John Wiley, New York, 1985). *Bull. London Math. Soc.* **18**, 317–318.
- [BR10] BINGHAM, N. H. (1987). Review of *Empirical Processes with Applications to Statistics* by G. R. Shorack and J. A. Wellner (John Wiley, New York, 1986). *Bull. London Math. Soc.* **19**, 298–300.
- [BR11] BINGHAM, N. H. (1988). Review of *Sluchaiŭnye protsessy s nezavisimymi prirashcheniyami* [*Random Processes with Independent Increments*] by A. V. Skorokhod ('Nauka', Moscow, 1986). *Math. Rev.* 860563 (88b:60171).
- [BR12] BINGHAM, N. H. (1988). Review of *Stopped Random Walks* by A. Gut (Springer, New York, 1988). *Math. Rev.* 916870 (88m:60085).
- [BR13] BINGHAM, N. H. (1989). Review of *Regular Variation, Extensions and Tauberian Theorems* by J. L. Geluk and L. de Haan (Centrum voor Wiskunde en Informatica, Amsterdam, 1987). *Math. Rev.* 906871 (89a:26002).
- [BR14] BINGHAM, N. H. (1990). Review of *Metod ryadov v granichnykh zadachakh dlya sluchaŭnykh bluzhdaniŭ* [*The Method of Series in Boundary Problems for Random Walks*] by S. Kh. Sirazhdinov and M. U. Gafurov ('Fan', Tashkent, 1987). *Math. Rev.* 981187 (90b:60091).
- [BR15] BINGHAM, N. H. (1990). Review of *An Introduction to the Theory of Coverage Processes* by P. Hall (John Wiley, Chichester, 1988). *J. R. Statist. Soc. A* **153**, 257–258.
- [BR16] BINGHAM, N. H. (1991). Review of *Granichnye zadachi dlya protsessov s nezavisimymi prirashcheniyami* [*Boundary Problems for Processes with Independent Increments*] by N. S. Bratiŭchuk and D. V. Gusak ('Naukova Dumka', Kiev, 1990). *Math. Rev.* 1070711 (91m:60139).
- [BR17] BINGHAM, N. H. (1994). Review of *Large Deviations Techniques and Applications* by A. Dembo and O. Zeitouni (Jones & Bartlett, Boston, 1993). *Bull. London Math. Soc.* **26**, 508–510.
- [BR18] BINGHAM, N. H. (1995). Review of *Probability, Statistics and Optimization: A Tribute to Peter Whittle*, ed. F. P. Kelly (John Wiley, Chichester, 1994). *J. R. Statist. Soc. A* **158**, 353–354.
- [BR19] BINGHAM, N. H. (1996). Review of *Borel's Methods of Summability* by B. Shawyer and B. Watson (Oxford University Press, New York, 1994). *Math. Rev.* 1320266 (96e:40001).
- [BR20] BINGHAM, N. H. (1996). Review of *Harald Cramér: Collected Works I, II*, ed. A. Martin-Löf (Springer, Berlin, 1994). *Bull. London Math. Soc.* **28**, 317–319.
- [BR21] BINGHAM, N. H. (1996). Review of *Harmonic Analysis of Probability Measures on Hypergroups* by W. R. Bloom and H. Heyer (Walter de Gruyter, Berlin, 1994). *Proc. Edinb. Math. Soc. (2)* **39**, 403–405.
- [BR22] BINGHAM, N. H. (1996). Review of *Diffusions, Markov Processes and Martingales, Vol. 1: Foundations* by L. C. G. Rogers and D. Williams (2nd edn, John Wiley, Chichester, 1994). *J. R. Statist. Soc. A* **159**, 354–355.
- [BR23] BINGHAM, N. H. (1997). Review of *An Intermediate Course in Probability* by A. Gut (Springer, New York, 1995). *Math. Rev.* 1353911 (97c:60001).
- [BR24] BINGHAM, N. H. (1997). Review of *Lévy Processes* by J. Bertoin (Cambridge University Press, 1996). *J. R. Statist. Soc. A* **160**, 370.
- [BR25] BINGHAM, N. H. (1997). Review of *Discrete Gambling and Stochastic Games* by A. D. Maitra and W. D. Sudderth (Springer, New York, 1996). *J. R. Statist. Soc. A* **160**, 376–377.
- [BR26] BINGHAM, N. H. (1998). Review of *A Modern Approach to Probability Theory* by B. Fristedt and L. Gray (Birkhäuser, Boston, 1997). *Math. Rev.* 1422917 (98e:60002).
- [BR27] BINGHAM, N. H. (2001). Review of *Stochastic Spectral Theory for Self-Adjoint Feller Operators: A Functional Integration Approach* by M. Demuth and J. A. van Casteren (Birkhäuser, Basel, 2000). *ISI Short Book Reviews* **21**, 50.
- [BR28] BINGHAM, N. H. (2001). Review of *Development of Mathematics, 1950–2000*, ed. J.-P. Pier (Birkhäuser, Basel, 2000). *London Math. Soc. Newsletter* **299**, 8–9.
- [BR29] BINGHAM, N. H. (2002). Review of *Probability Theory, An Analytic View* by D. W. Stroock (Cambridge University Press, 1999). *J. Amer. Statist. Assoc.* **97**, 365.
- [BR30] BINGHAM, N. H. (2003). Review of *Lévy Processes and Infinitely Divisible Distributions* by K.-I. Sato (Cambridge University Press, 1999). *Math. Rev.* 1739520 (2003b:60064).
- [BR31] BINGHAM, N. H. (2004). Review of *Stochastic Processes: From Physics to Finance* by W. Paul and J. Baschnagel (Springer, Berlin, 1999). *Math. Rev.* 1988705 (2004m:60003).
- [BR32] BINGHAM, N. H. (2004). Review of *Statistical Computing: An Introduction to Data Analysis Using S-Plus* by M. J. Crawley (John Wiley, Chichester, 2002). *J. R. Statist. Soc. A* **167**, 761–762.
- [BR33] BINGHAM, N. H. (2004). Review of *Elementary Probability* by D. Stirzaker (2nd edn, Cambridge University Press, 2003). *J. R. Statist. Soc. A* **167**, 767–768.
- [BR34] BINGHAM, N. H. (2005). Review of *An Introduction to Financial Option Valuation: Mathematics, Stochastics and Computation* by D. J. Higham (Cambridge University Press, 2004). *Math. Gazette* **89**, 338–339.

- [BR35] BINGHAM, N. H. (2006). Review of *Financial Modelling with Jump Processes* by R. Cont and P. Tankov (Chapman & Hall/CRC, Baton Rouge, FL, 2004). *J. Amer. Statist. Assoc.* **101**, 1315–1316.
- [BR36] BINGHAM, N. H. (2006). Review of *Statistics: An Introduction using R* by M. J. Crawley (John Wiley, New York, 2005). *J. R. Statist. Soc. A* **169**, 169–170.
- [BR37] BINGHAM, N. H. (2006). Review of *Probability, A Graduate Course* by A. Gut (Springer, New York, 2005). *J. R. Statist. Soc. A* **169**, 171–172.
- [BR38] BINGHAM, N. H. (2006). Review of *Statistical Tools for Finance and Insurance* by P. Cizek, W. Härdle and R. Weron (Springer, New York, 2005). *J. R. Statist. Soc. A* **169**, 1005.
- [BR39] BINGHAM, N. H. (2006). Review of *Functional Analysis for Probability and Stochastic Processes: An Introduction* by A. Bobrowski (Cambridge University Press, 2005). *J. Amer. Statist. Assoc.* **101**, 1728.
- [BR40] BINGHAM, N. H. (2007). Review of *Insurance Risk and Ruin* by D. C. M. Dickson (Cambridge University Press, 2005). *Math. Gazette* **91**, 378–379.
- [BR41] BINGHAM, N. H. (2007). Review of *Probabilistic Applications of Tauberian Theorems* by A. L. Yakimiv (transl. A. V. Kolchin; VSP, Leiden, 2005). *Math. Rev.* 2225340 (2007b:60004).
- [BR42] BINGHAM, N. H. (2009). Review of *Markov Processes, Gaussian Processes and Local Times* by M. B. Marcus and J. Rosen (Cambridge University Press, 2006). *J. Amer. Statist. Assoc.* **104**, 862.
- [BR43] BINGHAM, N. H. (2010). Review of *Asymptotic Analysis of Random Walks: Heavy-Tailed Distributions* by A. A. Borovkov and K. A. Borovkov (transl. O. B. Borovkova; Cambridge University Press, 2008). *Bull. London Math. Soc.* **42**, 183–185.

Obituaries¹

- [O1] BINGHAM, N. H. (2000). Obituary of Cyril Offord [Albert Cyril Offord], 9.6.1906–6.6.2000. *The Times*, 26th June.
- [O2] BINGHAM, N. H. (2001). Obituary of John Hawkes, 28.2.1944–11.4.2001. *The Times*, 10th May.
- [O3] BINGHAM, N. H. (2003). Obituary of Donald Coxeter [Harold Scott MacDonald Coxeter], 9.2.1907–31.3.2003. *The Times*, 14th April.
- [O4] BINGHAM, N. H. (2003). Obituary of Armand Borel, 21.5.1923–11.8.2003. *The Times*, 21st August.
- [O5] BINGHAM, N. H. (2003). Obituary of Geoffrey Thomas Kneebone, 24.2.1918–30.9.2003. *The Times*, 21st October.
- [O6] BINGHAM, N. H. (2003). Obituary of Geoffrey Thomas Kneebone, 24.2.1918–30.9.2003. *London Math. Soc. Newsletter* **320**, 6.
- [O7] BINGHAM, N. H. (2004). Obituary of David Herbert Fowler, 28.4.1937–13.4.2004. *The Times*, 10th May.
- [O8] BINGHAM, N. H. (2004). Obituary of Joe Doob [Joseph Leo Doob], 27.2.1910–7.6.2004. *The Times*, 26th July.
- [O9] BINGHAM, N. H. (2004). Obituary of Derek Roy Taunt, 16.11.1917–15.7.2004. *The Times*, 13th August.
- [O10] BINGHAM, N. H. (2004). Obituary of Derek Roy Taunt, 16.11.1917–15.7.2004. *London Math. Soc. Newsletter* **330**, 10.
- [O11] BINGHAM, N. H. (2004). Obituary of Shizuo Kakutani, 28.8.1911–17.8.2004. *The Times*, 18th August.
- [O12] BINGHAM, N. H. (2005). Obituary of Sir Edward Maitland Wright, 13.2.1906–2.2.2005. *The Times*, 11th February.
- [O13] BINGHAM, N. H. (2005). Obituary of Sir Edward Maitland Wright, 13.2.1906–2.2.2005. *London Math. Soc. Newsletter* **335**, 8.
- [O14] BINGHAM, N. H. (2006). Obituary of Paul Moritz Cohn, 8.1.1924–20.4.2006. *The Times*, 29th June.
- [O15] BINGHAM, N. H. (2007). Obituary of Frederick Mosteller [Charles Frederick Mosteller], 24.12.1916–23.7.2006. *The Times*, 26th June.
- [O16] BINGHAM, N. H. (2007). Obituary of Atle Selberg, 14.6.1917–6.8.2007. *The Times*, 18th September.
- [O17] BINGHAM, N. H. (2007). Obituary of David George Kendall, 15.1.1918–23.10.2007. *The Independent*, 1st November.
- [O18] BINGHAM, N. H. (2008). Obituary of Samuel Karlin, 2.10.1924–18.12.2007. *The Times*, 23rd January.
- [O19] BINGHAM, N. H. (2008). Obituary of Anthony James Merrill Spencer, 23.8.1929–26.1.2008. *The Times*, 1st April.
- [O20] BINGHAM, N. H. (2008). Obituary of Derek Thomas Whiteside, 23.7.1932–22.4.2008. *The Times*, 7th May.
- [O21] BINGHAM, N. H. (2008). Obituary of Henri Paul Cartan, 8.7.1904–13.8.2008. *The Times*, 10th September.
- [O22] BINGHAM, N. H. (2008). Obituary of Kiyosi Itô, 7.9.1915–10.11.2008. *The Times*, 20th November.
- [O23] BINGHAM, N. H. (2009). Obituary of Jack Good [Irving John Good], 9.12.1916–16.4.2009. *The Times*, 16th April.

¹The papers section (above) of this bibliography includes several articles labelled obituaries which the editors (and NHB) consider rather as biographical papers, and so list them there rather than here.

- [O24] BINGHAM, N. H. (2009). Obituary of Jack Good [Irving John Good], 9.12.1916–16.4.2009. *London Math. Soc. Newsletter* **383**, 9.
- [O25] BINGHAM, N. H. (2009). Obituary of Sir Clive William John Granger, 4.9.1934–27.5.2009. *The Times*, 1st June.
- [O26] BINGHAM, N. H. (2009). Obituary of Walter Ledermann, 18.3.1911–2.5.2009. *The Times*, 19th June.
- [O27] BINGHAM, N. H. (2009). Obituary of Israel Moiseevich Gelfand, 2.9.1913–5.10.2009. *The Times*, 21st October.
- [O28] BINGHAM, N. H. (2009). Obituary of Shaun Wylie, 17.1.1913–2.10.2009. *The Times*, 5th November.
- [O29] BINGHAM, N. H. (2010). Obituary of Martin Gardner, 21.10.1914–22.5.2010. *The Times*, 8th June.
- [O30] BINGHAM, N. H. (2010). Obituary of Vladimir Igorevich Ar' nold, 12.6.1937–3.6.2010. *The Times*, 24th June.
- [O31] BINGHAM, N. H. (2010). Obituary of Paul Malliavin, 11.9.1925–3.6.2010. *The Times*, 29th June.
- [O32] BINGHAM, N. H. (2010). Obituary of Jaroslav Stark, 17.6.1960–3.6.2010. *The Times*, 29th June.
- [O33] BINGHAM, N. H. (2010). Obituary of John Ashworth Nelder, 18.10.1924–7.8.2010. *The Times*, 27th August.
- [O34] BINGHAM, N. H. (2010). Obituary of Nigel John Kalton, 20.6.1946–31.8.2010. *The Times*, 8th October.
- [O35] BINGHAM, N. H. (2010). Obituary of Benoit B. Mandelbrot, 20.11.1924–14.10.2010. *The Times*, 18th October.
- [O36] BINGHAM, N. H. (2010). Obituary of Peter John Hilton, 7.4.1923–6.11.2010. *The Times*, 16th November.
- [O37] BINGHAM, N. H. AND KEENE, R. (2011). Obituary of Gregory Hjorth, 14.6.1963–13.1.2011. *The Times*, 8th March.
- [O38] BINGHAM, N. H. (2011). Obituary of Daniel Grey Quillen, 22.6.1940–30.4.2011. *The Times*, 6th June.
- [O39] BINGHAM, N. H. (2012). Obituary of Fritz Joseph Ursell, 28.4.1923–12.5.2012. *The Times*, 26th June.
- [O40] BINGHAM, N. H. (2012). Obituary of John Alfred Bather, 20.1.1936–7.9.2012. *The Times*, 4th October.
- [O41] BINGHAM, N. H. (2016). Obituary of Lajos Takács, 21.8.1924–4.12.2015. To appear in *J. R. Statist. Soc. A*.

Reminiscences

- [R1] BINGHAM, N. H. (2000). Postgraduate memories, 1966–69. *Churchill College Cambridge Report*.
- [R2] BINGHAM, N. H. (2001). TGS memories 1955–63. *Tadcaster Grammar School Old Students' Association Newsletter* **18**, Spring.
- [R3] BINGHAM, N. H. (2001). Race the Train and me. *Barnet & District Athletics Club Magazine*, December.
- [R4] BINGHAM, N. H. (2004). Remembering John Hammersley: a tribute from a former pupil. *Trinity College Oxford Report*, 23–24.
- [R5] BINGHAM, N. H. (2008). Blanche Louise Bingham (née Corbitt), 1912–2008. *St Hugh's Chronicle [St Hugh's College Oxford]*.
- [R6] BINGHAM, N. H. (2009). The marathon and me. *Barnet & District Athletics Club Magazine*, March.
- [R7] BINGHAM, N. H. (2012). Twenty Berkhamsted half-marathons. *Barnet & District Athletics Club Magazine*, September.
- [R8] BINGHAM, N. H. (2014). The Cabbage Patch 10, Sunday 19 October. *Barnet & District Athletics Club Magazine*, December.
- [R9] BINGHAM, N. H. (2016). Sutton Park across the age groups. *Barnet & District Athletics Club Magazine*, June.