

ADVANCES IN APPLIED PROBABILITY

INCLUDING A SECTION ON

STOCHASTIC GEOMETRY AND
STATISTICAL APPLICATIONS

VOLUME 40

NUMBER 4

DECEMBER 2008



EDITOR-IN-CHIEF S. ASMUSSEN

FOUNDING EDITOR (1964–1989) J. GANI

PAST EDITOR-IN-CHIEF (1990–2007) C. C. HEYDE

ADVANCES IN APPLIED PROBABILITY

This is a companion publication to the *Journal of Applied Probability* published by the Applied Probability Trust. It contains reviews and expository papers in applied probability, as well as mathematical and scientific papers of interest to probabilists, letters to the editor and a section devoted to stochastic geometry and statistical applications (SGSA). An annual volume of up to 1200 pages is published in four issues appearing in March, June, September and December.

EDITORIAL BOARD

<i>Editor-in-Chief</i>	S. ASMUSSEN (Aarhus Universitet)
<i>Coordinating Editors</i>	N. H. BINGHAM (Imperial College London) P. JAGERS (Chalmers University of Technology and Göteborgs Universitet) I. MOLCHANOV SGSA (Universität Bern)
<i>Editors</i>	R. J. ADLER (Technion, Haifa) T. AVEN (University of Stavanger) F. BACCELLI SGSA (ENS, Paris) J. D. BIGGINS (University of Sheffield) J. BLANCHET (Columbia University) S. N. CHIU SGSA (Hong Kong Baptist University) D. J. DALEY (Australian National University) P. EMBRECHTS (ETH, Zürich) S. FOSS (Heriot-Watt University) P. W. GLYNN (Stanford University) O. HÄGGSTRÖM (Chalmers University of Technology) S. JANSON (Uppsala Universitet) W. S. KENDALL SGSA (University of Warwick) F. C. KLEBANER (Monash University) C. KLÜPPELBERG (Technische Universität München) S. G. KOU (Columbia University) A. E. KYPRIANOU (University of Bath) G. LAST SGSA (Universität Karlsruhe) T. MIKOSCH (Københavns Universitet) J. MÖLLER SGSA (Aalborg Universitet) A. MÜLLER (University of Siegen) M. D. PENROSE SGSA (University of Bath) M. REITZNER SGSA (TU Vienna) S. I. RESNICK (Cornell University) L. C. G. ROGERS (University of Cambridge) G. SAMORODNITSKY (Cornell University) M. SCARSINI (LUISS) M. SCHWEIZER (ETH, Zürich) A. L. STOLYAR (Alcatel-Lucent) D. STOYAN SGSA (Bergakademie Freiberg) P. G. TAYLOR (University of Melbourne) J. L. TEUGELS (Katholieke Universiteit Leuven) R. VAN DER HOFSTAD (Technische Universiteit Eindhoven) R. R. WEBER (University of Cambridge) W. WHITT (Columbia University)

EDITORIAL OFFICE

<i>Executive Editor</i>	L. J. NASH (University of Sheffield)
<i>Production Editor</i>	E. TALIB (University of Sheffield)

All correspondence relating to the submission of papers should be sent to: The Executive Editor, Applied Probability, School of Mathematics and Statistics, University of Sheffield, Sheffield S3 7RH, UK. Subscription rates and notes for contributors are to be found on the inside back cover.

CONTENTS

Volume 40

Number 1

Stochastic Geometry and Statistical Applications

- 1 DAVID J. ALDOUS AND WILFRID S. KENDALL. Short-length routes in low-cost networks via Poisson line patterns
- 22 JENNIE C. HANSEN, ERIC SCHMUTZ AND LI SHENG. Covering random points in a unit disk
- 31 MARKUS KIDERLEN. Estimation of the mean normal measure from flat sections
- 49 JOSEPH MECKE, WERNER NAGEL AND VIOLA WEISS. The iteration of random tessellations and a construction of a homogeneous process of cell divisions

General Applied Probability

- 60 BERNARDO D'AURIA AND SIDNEY I. RESNICK. The influence of dependence on data network models
- 95 JUNPING LI AND ANYUE CHEN. Decay property of stopped Markovian bulk-arriving queues
- 122 A. J. E. M. JANSSEN, J. S. H. VAN LEEUWAARDEN AND B. ZWART. Gaussian expansions and bounds for the Poisson distribution applied to the Erlang B formula
- 144 ELISA ALÒS AND CHRISTIAN-OLIVER EWALD. Malliavin differentiability of the Heston volatility and applications to option pricing
- 163 SHEK-KEUNG TONY WONG. The generalized perpetual American exchange-option problem
- 183 JENNIE C. HANSEN AND JERZY JAWORSKI. Local properties of random mappings with exchangeable in-degrees
- 206 ALEX IKSANOV AND MARTIN MÖHLE. On the number of jumps of random walks with a barrier
- 229 ELIZABETH S. ALLMAN, CÉCILE ANÉ AND JOHN A. RHODES. Identifiability of a Markovian model of molecular evolution with gamma-distributed rates
- 250 SANTANU CHAKRABORTY AND JOSE ALFREDO LÓPEZ-MIMBELA. Nonexplosion of a class of semilinear equations via branching particle representations
- 273 BRUNO CASELLA AND GARETH O. ROBERTS. Exact Monte Carlo simulation of killed diffusions

Stochastic Geometry and Statistical Applications

- 293 CHARLES BORDENAVE AND GIOVANNI LUCA TORRISI. Monte Carlo methods for sensitivity analysis of Poisson-driven stochastic systems, and applications
- 321 JESPER MØLLER AND KATEŘINA HELISOVÁ. Power diagrams and interaction processes for unions of discs
- 348 BEATRIZ PATEIRO-LÓPEZ AND ALBERTO RODRÍGUEZ-CASAL. Length and surface area estimation under smoothness restrictions

General Applied Probability

- 359 C. CHARALAMBOUS AND J. C. GITTINS. Optimal selection policies for a sequence of candidate drugs
- 377 SAVAS DAYANIK, WARREN POWELL AND KAZUTOSHI YAMAZAKI. Index policies for discounted bandit problems with availability constraints
- 401 CHRISTOPH FREI AND MARTIN SCHWEIZER. Exponential utility indifference valuation in two Brownian settings with stochastic correlation
- 424 LUCIA CAMELLINO AND BARBARA PACCHIAROTTI. Large deviation estimates of the crossing probability for pinned Gaussian processes
- 454 IVAN GENTIL AND BRUNO RÉMILLARD. Using systematic sampling selection for Monte Carlo solutions of Feynman–Kac equations
- 473 ROBERT C. GRIFFITHS, PAUL A. JENKINS AND YUN S. SONG. Importance sampling and the two-locus model with subdivided population structure
- 501 JONATHAN TOUBOUL AND OLIVIER FAUGERAS. A characterization of the first hitting time of double integral processes to curved boundaries
- 529 FRANCISCO J. PIERA, RAVI R. MAZUMDAR AND FABRICE M. GUILLEMIN. Boundary behavior and product-form stationary distributions of jump diffusions in the orthant with state-dependent reflections
- 548 DAVID GAMARNIK AND PETAR MOMČILOVIĆ. Steady-state analysis of a multiserver queue in the Halfin–Whitt regime
- 578 NICOLE BÄUERLE AND RUDOLF GRÜBEL. Multivariate risk processes with interacting intensities

Stochastic Geometry and Statistical Applications

- 603 GUNNAR HELLMUND, MICHAELA PROKEŠOVÁ AND EVA B. VEDEL JENSEN. Lévy-based Cox point processes
- 630 CLAUDIA LAUTENSACK AND SERGEI ZUYEV. Random Laguerre tessellations
- 651 DOMINIC SCHUHMACHER AND AIHUA XIA. A new metric between distributions of point processes

General Applied Probability

- 673 TAKASHI TAMURA. Maximization of the long-term growth rate for a portfolio with fixed and proportional transaction costs
- 696 MATTHIAS DEGEN AND PAUL EMBRECHTS. EVT-based estimation of risk capital and convergence of high quantiles
- 716 HYUN SUK PARK AND ROSS MALLER. Moment and MGF convergence of overshoots and undershoots for Lévy insurance risk processes
- 734 ADAM BOBROWSKI. Asymptotic behavior of a Feller evolution family involved in the Fisher–Wright model
- 759 XIN QI. A functional central limit theorem for spatial birth and death processes
- 798 ERIK BROMAN AND RONALD MEESTER. Survival of inhomogeneous Galton–Watson processes
- 815 K. BOROVKOV AND G. LAST. On level crossings for a general class of piecewise-deterministic Markov processes
- 835 EUNJU SOHN AND CHARLES KNESSL. The distribution of wasted spaces in the $M/M/\infty$ queue with ranked servers
- 856 CHARLES KNESSL AND DIEGO ERNESTO DOMINICI. Asymptotic analysis of a fluid model modulated by an $M/M/1$ queue
- 882 DAVID VERE-JONES. A limit theorem with application to Båth’s law in seismology
- 897 HONGSHENG DAI. Perfect sampling methods for random forests

Stochastic Geometry and Statistical Applications

- 919 KASRA ALISHAHI AND MOHSEN SHARIFITABAR. Volume degeneracy of the typical cell and the chord length distribution for Poisson–Voronoi tessellations in high dimensions
- 939 RAMA CONT AND EMILY TANIMURA. Small-world graphs: characterization and alternative constructions
- 966 ARCHIS GHATE. Decentralized search on spheres using small-world Markov chains: expected hitting times and structural properties

General Applied Probability

- 979 KARI HEINE AND DAN CRISAN. Uniform approximations of discrete-time filters
- 1002 JOHN K. MCSWEENEY AND BORIS G. PITTEL. Expected coalescence time for a nonuniform allocation process
- 1033 JOSÉ A. ADELL, JOSÉ M. ANOZ AND ALBERTO LEKUONA. Exact values and sharp estimates for the total variation distance between binomial and Poisson distributions
- 1048 ANNE FEY, REMCO VAN DER HOFSTAD AND MARTEN J. KLOK. Large deviations for eigenvalues of sample covariance matrices, with applications to mobile communication systems
- 1072 TAKIS KONSTANTOPOULOS, ANDREAS E. KYPRIANOU, PAAVO SALMINEN AND MARINA SIRVIÖ. Analysis of stochastic fluid queues driven by local-time processes
- 1104 JOSE H. BLANCHET AND JINGCHEN LIU. State-dependent importance sampling for regularly varying random walks
- 1129 V. V. ANH, NIKOLAI N. LEONENKO AND NARN-RUEIH SHIEH. Multifractality of products of geometric Ornstein–Uhlenbeck-type processes
- 1157 WINFRIED K. GRASSMANN AND JAVAD TAVAKOLI. Stochastic and substochastic solutions for infinite-state Markov chains with applications to matrix-analytic methods
- 1174 LORENS A. IMHOF. Multiple-trial conflicts and stochastic evolutionary game dynamics
- 1198 DONATAS SURGAILIS. A quadratic ARCH(∞) model with long memory and Lévy stable behavior of squares

Letter to the Editor

- 1223 YAMING YU. On an inequality of Karlin and Rinott concerning weighted sums of i.i.d. random variables
- 1227 Index (General Applied Probability)
- 1230 Index (Stochastic Geometry and Statistical Applications)