# ADVANCES IN APPLIED PROBABILITY

### INCLUDING A SECTION ON

## STOCHASTIC GEOMETRY AND STATISTICAL APPLICATIONS

VOLUME 39

NUMBER 4

DECEMBER 2007

AR

CO-EDITORS-IN-CHIEF C.C.HEYDE S.ASMUSSEN

FOUNDING EDITOR (1964–1989) J. GANI

https://doi.org/10.1017/50001867800002299 Published online by Cambridge University Press

## 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

Co-Editors-in-Chief	<ul><li>C. C. HEYDE (Columbia University and Australian National University)</li><li>S. ASMUSSEN (Aarhus Universitet)</li></ul>
Coordinating Editors	<ul> <li>N. H. BINGHAM (Imperial College London)</li> <li>P. JAGERS (Chalmers University of Technology and Göteborgs Universitet)</li> <li>I. MOLCHANOV SGSA (Universität Bern)</li> </ul>
Editors	<ul> <li>R. J. ADLER (Technion, Haifa)</li> <li>R. J. ADLER (Technion, Haifa)</li> <li>T. AVEN (University of Stavanger)</li> <li>F. BACCELLI SGSA (ENS, Paris)</li> <li>A. J. BADDELEY SGSA (University of Western Australia)</li> <li>P. BRÉMAUD (ENS, Paris, and EPFL, Lausanne)</li> <li>C. CANNINGS (University of Sheffield)</li> <li>R. COWAN SGSA (University of Sydney)</li> <li>D. J. DALEY (Australian National University)</li> <li>P. J. DONNELLY (University of Oxford)</li> <li>P. EMBRECHTS (ETH, Zürich)</li> <li>P. W. GLYNN (Stanford University)</li> <li>O. HÄGGSTRÖM (Chalmers University of Technology)</li> <li>S. JANSON (Uppsala University)</li> <li>O. HÄGGSTRÖM (Chalmers University of Technology)</li> <li>S. JANSON (Uppsala University)</li> <li>G. KERSTING (Johann Wolfgang Goethe-Universität, Frankfurt am Main)</li> <li>J. F. C. KINGMAN (Isaac Newton Institute, Cambridge)</li> <li>F. C. KLEBANER (Monash University)</li> <li>C. KLÜPPELBERG (Technische Universität München)</li> <li>S. G. KOU (Columbia University of Bath)</li> <li>G. LAST SGSA (Universitä Karlsruhe)</li> <li>T. MIKOSCH (Københavns University)</li> <li>M. D. PENROSE SGSA (University of Bath)</li> <li>S. I. RESNICK (Cornell University)</li> <li>M. D. PENROSE SGSA (University of Bath)</li> <li>S. I. RESNICK (Cornell University)</li> <li>M. SCARSINI (Università di Torino)</li> <li>M. SCHWEIZER (ETH, Zürich)</li> <li>A. L. STOLYAR (Alcatel-Lucent)</li> <li>D. STOYAN SGSA (Bergakademie Freiberg)</li> <li>P. G. TAYLOR (University of Melbourne)</li> <li>J. L. TEUGELS (Katholicke Universiteit Leuven)</li> <li>R. VAN DER HOFSTAD (Technische Universitet)</li> <li>N. AN DER HOFSTAD (Technische Universitet)</li> <li>N. WEBER (University of Connecticut)</li> <li>R. WEBER (University of Connecticut)</li> <li>R. WEBER (University of Connecticut)</li> </ul>
EDITORIAL OFFICE	W. WHITT (Columbia University)
LUITORIAL OFFICE	

Executive Editor Production Editor L. J. NASH (University of Sheffield) E. TALIB (University of Sheffield)

#### CONTENTS

#### Volume 39 Number 1

#### Stochastic Geometry and Statistical Applications

- 1 FELIX BALLANI. The surface pair correlation function for stationary Boolean models
- 16 VOLKER BAUMSTARK AND GÜNTER LAST. Some distributional results for Poisson–Voronoi tessellations
- 41 MARIANNE MÅNSSON. A connection between the volume fractions of the Stienen model and the dead leaves model
- 53 LEANDRO P. R. PIMENTEL. Multitype shape theorems for first passage percolation models

- 77 CHANTAL LABBÉ AND ANDREW J. HEUNIS. Convex duality in constrained mean-variance portfolio optimization
- 105 FRANCISCO VERA AND JAMES LYNCH. General convex stochastic orderings and related martingale-type structures
- 128 ETIENNE ROQUAIN AND SOPHIE SCHBATH. Improved compound Poisson approximation for the number of occurrences of any rare word family in a stationary Markov chain
- 141 L. RIGAL AND L. TRUFFET. A new genetic algorithm specifically based on mutation and selection
- 162 JULIEN BARRAL AND STÉPHANE SEURET. Renewal of singularity sets of random self-similar measures
- 189 CHRISTIAN Y. ROBERT. Stochastic stability of some state-dependent growth-collapse processes
- 221 DENIS DENISOV AND VSEVOLOD SHNEER. Local asymptotics of the cycle maximum of a heavy-tailed random walk
- 245 MICHAEL SCHRÖDER. Continuous-time methods in the study of discretely sampled functionals of Lévy processes. I. The positive process case
- 271 QI-MING HE AND HANQIN ZHANG. On matrix exponential distributions

#### Volume 39 Number 2

Stochastic Geometry and Statistical Applications

- 293 K. A. BOROVKOV AND D. A. ODELL. On spatial thinning-replacement processes based on Voronoi cells
- 307 LARS MICHAEL HOFFMANN. Intersection densities of nonstationary Poisson processes of hypersurfaces
- 318 HERMANN THORISSON. The Palm-duality for random subsets of *d*-dimensional grids
- 326 ANDREW R. WADE. Explicit laws of large numbers for random nearest-neighbour-type graphs

- 343 JUN CAI. On the time value of absolute ruin with debit interest
- 360 UĞUR TUNCAY ALPARSLAN AND GENNADY SAMORODNITSKY. Ruin probability with certain stationary stable claims generated by conservative flows
- 385 SUSAN M. PITTS AND KONSTADINOS POLITIS. Approximations for the Gerber–Shiu expected discounted penalty function in the compound Poisson risk model
- 407 KURT MAJEWSKI. Large deviation properties of constant rate data streams sharing a buffer with long-range dependent traffic in critical loading
- 429 THU-HA DAO-THI AND JEAN MAIRESSE. Zero-automatic queues and product form
- 462 DAREN B. H. CLINE. Stability of nonlinear stochastic recursions with application to nonlinear AR-GARCH models
- 492 CLAUDE LEFÈVRE. First-crossing and ballot-type results for some nonstationary sequences
- 510 P. BARRIEU AND N. BELLAMY. Optimal hitting time and perpetual option in a non-Lévy model: application to real options
- 531 JEANNETTE H. C. WOERNER. Inference in Lévy-type stochastic volatility models
- 550 C. DOMBRY. A weighted random walk model, with application to a genetic algorithm
- 569 PETER JAGERS, FIMA C. KLEBANER AND SERIK SAGITOV. Markovian paths to extinction
- 588 E. ORSINGHER AND A. DE GREGORIO. Random motions at finite velocity in a non-Euclidean space

#### Volume 39 Number 3

Stochastic Geometry and Statistical Applications

- 613 GENNADIY AVERKOV AND GABRIELE BIANCHI. Retrieving convex bodies from restricted covariogram functions
- 630 RICHARD COWAN. Identities linking volumes of convex hulls

- 645 XIANPING GUO AND ONÉSIMO HERNÁNDEZ-LERMA. Zero-sum games for continuous-time jump Markov processes in Polish spaces: discounted payoffs
- 669 JOSTEIN PAULSEN. Optimal dividend payments until ruin of diffusion processes when payments are subject to both fixed and proportional costs
- 690 GIACOMO ALETTI, CATERINA MAY AND PIERCESARE SECCHI. On the distribution of the limit proportion for a two-color, randomly reinforced urn with equal reinforcement distributions
- 708 D. A. CROYDON. The Hausdorff dimension of a class of random self-similar fractal trees
- 731 MARTIN RAIČ. CLT-related large deviation bounds based on Stein's method
- 753 TZE LEUNG LAI, YI–CHING YAO AND FARID AITSAHLIA. Corrected random walk approximations to free boundary problems in optimal stopping
- 776 NIELS RICHARD HANSEN. Asymptotics for local maximal stack scores with general loop penalty function
- 799 CHINGFER CHEN AND SAMUEL KARLIN. *r*-scan statistics of a Poisson process with events transformed by duplications, deletions, and displacements
- 826 CHENG-DER FUH. Asymptotic expansions on moments of the first ladder height in Markov random walks with small drift

#### Volume 39 Number 4

#### Stochastic Geometry and Statistical Applications

- 853 AYALVADI GANESH AND FENG XUE. On the connectivity and diameter of small-world networks
- 864 LARS MICHAEL HOFFMANN. On weak stationarity and weak isotropy of processes of convex bodies and cylinders
- 883 VIKTOR OLSBO. On the correlation between the volumes of the typical Poisson–Voronoi cell and the typical Stienen sphere
- 893 EMMANUEL ROY. Bartlett spectrum and mixing properties of infinitely divisible random measures

- 898 IDRISS MAOUI, HAYRIYE AYHAN AND ROBERT D. FOLEY. Congestion-dependent pricing in a stochastic service system
- 922 TOM BRITTON, SVANTE JANSON AND ANDERS MARTIN-LÖF. Graphs with specified degree distributions, simple epidemics, and local vaccination strategies
- 949 FRANK BALL AND TOM BRITTON. An epidemic model with infector-dependent severity
- 973 PEDRO J. FERNÁNDEZ, PABLO A. FERRARI AND SEBASTIAN P. GRYNBERG. Perfectly random sampling of truncated multinormal distributions
- 991 FROSSO S. MAKRI, ANDREAS N. PHILIPPOU AND ZAHARIAS M. PSILLAKIS. Success run statistics defined on an urn model
- 1020 SOFIA ÅBERG. Wave intensities and slopes in Lagrangian seas
- 1036 F. C. KLEBANER, U. RÖSLER AND S. SAGITOV. Transformations of Galton–Watson processes and linear fractional reproduction
- 1054 I. RAHIMOV. Functional limit theorems for critical processes with immigration
- 1070 J. BLANCHET AND P. GLYNN. Uniform renewal theory with applications to expansions of random geometric sums
- 1098 EITAN BACHMAT, DANIEL BEREND, LUBA SAPIR AND STEVEN SKIENA. Optimal boarding policies for thin passengers
- 1115 Correction
- 1117 Index (General Applied Probability)
- 1119 Index (Stochastic Geometry and Statistical Applications)