# **SUBSCRIPTION RATES**

Subscription rates (post free) for volume 36 (1999) of the Journal of Applied Probability are as follows:

US\$232.50; \$A366.60; £141.00 for libraries and institutions;

US\$77.50; \$A122.20; £47.00 for individuals belonging to a recognised scientific society.

Members of the London Mathematical Society should apply direct to the Secretary of the Society for copies of the *Journal*.

Please send all enquiries to: Applied Probability, School of Mathematics and Statistics, The University, Sheffield S3 7RH, UK.

We can provide back issue prices on application. Cheques, money orders, etc. should be made out to APPLIED PROBABILITY. Payment is accepted in US, UK or Australian currency or by VISA or Mastercard (phone: +44 114 222 3922; fax: +44 114 272 9782).

# NOTES FOR CONTRIBUTORS

Papers published in the Journal are of two kinds:

- (1) research papers not exceeding 20 printed pages;
- (2) short communications of a few printed pages in the nature of notes or brief accounts of work in progress.

Review papers, longer research papers and letters to the editor are published in Advances in Applied Probability, a companion journal. (Note: Letters relating specifically to papers which have appeared in the Journal of Applied Probability will continue to appear in the Journal.)

The editors may publish accepted papers in either journal, according to the space available, in order to meet the 15-month deadline in publication referred to below.

# **Submission of papers**

Papers submitted to the Applied Probability journals are considered on the understanding that they have not been published previously and are not under consideration by another publication. Papers will not be reprinted without the written permission of the Trust. It is the policy not to accept for publication papers which cannot appear in print within 15 months of the date of receipt of the final version. Fifty reprints of each paper will be provided free; additional reprints are available at cost.

Papers should be written in English or French; papers in other languages may be accepted by the editors, but will appear (subject to the author's agreement) in English or French translation. Please supply *three* double-spaced hard copies, at least one of which should be printed on one side of the paper only. The paper should include: (1) a short abstract of approximately 4–10 lines giving a non-mathematical description of the subject matter and results; (2) list of keywords detailing the contents for the purpose of computerised information retrieval; (3) primary and secondary classifications according to the 1991 Mathematics Subject Classification, to be found in the 1990 Annual Index of *Mathematical Reviews*.

Authors are advised to consult *The Author's Guide to the Applied Probability Journals* when preparing papers for submission. A copy of this guide may be obtained free of charge from the Applied Probability Office. An updated version of the guide, with LATEX style files, can be obtained in electronic form on http://www.shef.ac.uk/~apt or on PC-compatible disk from the Applied Probability Office.

For efficiency in processing, authors are requested to send all submissions to the Applied Probability Office in Sheffield, rather than to individual editors. The address for all submissions is:

Executive Editor, Applied Probability, School of Mathematics and Statistics, The University, Sheffield S3 7RH, UK.

# **COPYRIGHT**

The copyright of all published papers shall be vested in the Trust. When a paper is accepted for publication, the Trust requests the author(s) to sign a form assigning copyright to the Trust. Failure to do this promptly may delay or prevent publication.

Authorisation to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by the Applied Probability Trust for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of \$00.70 per copy, plus .20 per page is paid directly to CCC, 222 Rosewood Drive, Danvers, MA 01923, USA. 0021–9002/99 \$00.70 + .20.

# Volume 36 Number 1

# Research Papers

- 1 S. D. JACKA. Keeping a satellite aloft: two finite fuel stochastic control models
- 21 GEORGE M. TSAKLIDIS. The stress tensor and the energy of a continuous time homogeneous Markov system with fixed size
- 30 DI WARREN. The Frobenius-Harper technique in a general recurrence model
- 48 GEORGE V. MOUSTAKIDES. Extension of Wald's first lemma to Markov processes
- 60 DANIELLE FLORENS-LANDAIS AND HUYÊN PHAM. Large deviations in estimation of an Ornstein-Uhlenbeck model
- 78 M. S. SGIBNEV. On the existence of submultiplicative moments for the stationary distributions of some Markovian random walks
- 86 NIKOLAY LIKHANOV AND RAVI R. MAZUMDAR. Cell loss asymptotics for buffers fed with a large number of independent stationary sources
- 97 MICHAEL WEBA. Bounds for the total variation distance between the binomial and the Poisson distribution in case of medium-sized success probabilities
- 105 ZHEN LIU, PHILIPPE NAIN, DON TOWSLEY AND ZHI-LI ZHANG. Asymptotic behavior of a multiplexer fed by a long-range dependent process
- 119 MARCO SCARSINI AND FABIO SPIZZICHINO. Simpson-type paradoxes, dependence, and ageing
- 132 M. P. QUINE AND W. SZCZOTKA. Existence and positivity of the limit in processes with a branching structure
- 139 OWEN DAFYDD JONES. Continuity for multi-type branching processes with varying environments
- 146 HAN-XING WANG. Extinction of population-size-dependent branching processes in random environments
- 155 M. A. GUERRY. Using fuzzy sets in manpower planning
- 163 PIERRE-F. KOEHL, HUYÊN PHAM AND NIZAR TOUZI. Hedging in discrete time under transaction costs and continuous-time limit
- 179 S. ROBIN AND J. J. DAUDIN. Exact distribution of word occurrences in a random sequence of letters
- 194 SUNGYEOL KANG AND RICHARD F. SERFOZO. Extreme values of phase-type and mixed random variables with parallel-processing examples
- 211 YANNIS A. KORILIS, AUREL A. LAZAR AND ARIEL ORDA. Avoiding the Braess paradox in non-cooperative networks
- 223 STEVE ALPERN, V. J. BASTON AND SKANDER ESSEGAIER. Rendezvous search on a graph
- 232 R. D. VAN DER MEI. Delay in polling systems with large switch-over times
- 244 OFFER KELLA AND WARD WHITT. Linear stochastic fluid network

#### Short Communications

- 261 F. THOMAS BRUSS AND M. SLAVTCHOVA-BOJKOVA. On waiting times to populate an environment and a question of statistical inference
- 268 P. K. POLLETT. Quasistationary distributions for continuous time Markov chains when absorption is not certain
- 273 M. P. QUINE AND J. S. LAW. Modelling random linear nucleation and growth by a Markov chain
- 279 YI-CHING YAO AND HARI IYER. On an inequality for the normal distribution arising in bioequivalence studies
- 287 AIHUA XIA. A probabilistic proof of Stein's factors
- 291 WOLFGANG STADJE. Stationarity of a stochastic population flow model

### Letter to the Editor

295 ECKHARD PLATEN. Axiomatic principles for a market model

Published by the **Applied Probability Trust** in association with the **London Mathematical Society** Copyright © 1999 by the **Applied Probability Trust** ISSN 0021–9002