

Advances in Applied Probability

The Editorial Board would like to encourage the submission to the *Advances* of review papers summarising and coordinating recent results in any of the fields of applied probability.

In addition to these review papers, *Advances* is also designed to be a medium of publication for (1) longer research papers in applied probability, which may include expository material, (2) expository papers on branches of mathematics of interest to probabilists, (3) papers outlining areas in the biological, physical, social and technological sciences in which probability models can be usefully developed, (4) papers in applied probability presented at conferences which do not publish their proceedings, and finally, (5) letters to the editor on any appropriate topic in applied probability.

As from March 1994, *Advances* will include a new section devoted to stochastic geometry and statistical applications (see the announcement and call for papers in the March issue).

In short, the main function of *Advances* is to define areas of recent progress and potential development in applied probability. As with the *Journal of Applied Probability*, *Advances* undertakes to publish papers accepted by the Editors within 15 months of their submission; letters to the editor will normally be published more rapidly.

Volume 25 No. 2 of *Advances* contains the following papers:

D. R. GREY AND LU ZHUNWEI. The asymptotic behaviour of extinction probability in the Smith–Wilkinson branching process

V. FERRETTI AND D. SANKOFF. The empirical discovery of phylogenetic invariants

ÅKE SVENSSON. Dynamics of an epidemic in a closed population

E. J. COLLINS AND J. M. McNAMARA. The job-search problem with competition; an evolutionarily stable dynamic strategy

ANANT P. GODBOLE AND ANDREW A. SCHAFFNER. Improved Poisson approximations for word patterns

T. ARAK, P. CLIFFORD AND D. SURGAILIS. Point-based polygonal models for random graphs

FERNANDO AFFENTRANGER AND REX A. DWYER. The convex hull of random balls

ILYA S. MOLCHANOV. Limit theorems for convex hulls of random sets

MASAKIYO MIYAZAWA. Insensitivity and product-form decomposability of reallocatable GSMP

K. SZAJOWSKI. Double stopping by two decision-makers

J. KEILSON AND L. D. SERVI. The matrix $M/M/\infty$ system: retrial models and Markov modulated sources

Subscription rates (per volume) for the *Advances* in 1993 are the same as for the *Journal* (see inside back cover). A discount of 10% is allowed to subscribers who order current issues of both the *Journal* and *Advances* at the same time direct from the Applied Probability Office. A detailed price list for both current and back issues is available on request.

Cheques made out on US, UK and Australian banks will be acceptable: they should be made payable to *Applied Probability*, and sent to:

Executive Editor, Applied Probability,
Department of Probability and Statistics,
The University, Sheffield S3 7RH, UK

THE MATHEMATICAL SCIENTIST

This publication contains papers on a variety of mathematical topics for the general information and enjoyment of mathematicians, statisticians and computer scientists; it also appeals to workers in any other discipline lending itself to the application of mathematical methods. Readers are encouraged to submit short papers, letters and problems concerned with the theory and application of mathematics, statistics or computing. Material for publication should be presented in a clear and simple style, suitable for an informed but non-specialist mathematical audience, and may be sent to any member of the editorial board:

Editor-in-chief: J. Gani (*Australian National University*)

Editors:

R. Anderssen (*CSIRO, Canberra*), Rosemary Bailey (*Goldsmiths' College, London*), J. Blake (*University of Birmingham*), Paul M. Cohn (*University College, London*), W. Forbes (*University of Waterloo*), John Gower (*Rothamsted Experimental Station, Harpenden*), C. C. Heyde (*Australian National University, Canberra*), K.-H. Hoffmann (*Technical University of Munich*), A. Konheim (*University of California, Santa Barbara*), Hilary Ockendon (*Mathematical Institute, Oxford*), Basil Rennie (*Burnside, S. Australia*), S. Resnick (*Cornell University, Ithaca, NY*), G.-C. Rota (*Massachusetts Institute of Technology*), and R. Stanton (*University of Manitoba, Winnipeg*).

Each volume consists of two issues distributed in June and December, totalling approximately 128 pages. Volume 18 (1993) costs £8.50 (US\$15.00, \$A19.75). The June issue will include the following contributions:

Confidence intervals for the ratio of two Poisson means, by Hardeo Sahai and Anwer Khurshid

Random minima scheme and carcinogenic risk estimation, by Svetlozar T. Rachev and Andrej Yu. Yakovlev

Minimum information probability models with applications to correlation, by Evan J. Williams

Approximations of differentiable functions and their derivatives on compact sets by neural networks, by Yoshifusa Ito

Optimal betting allocations, by E. G. Enns and D. D. Tomkins

Enumeration of rooted trees and forests, by L. Takács

On the presentation of evidence, by D. V. Lindley

On computing ratios of factorials, by Marcel F. Neuts

Orders and requests for further information should be sent to

Executive Editor, Applied Probability,
Department of Probability and Statistics,
The University, Sheffield S3 7RH, England.

SUBSCRIPTION RATES

Subscription rates (post free) for the 1993 volume of the *Journal* are as follows:

US\$168.00; \$A222.00; £96.00 for libraries and institutions;

US\$56.00; \$A74.00; £32.00 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*.

All enquiries about the *Journal*, as well as other subscriptions, should be sent to the Executive Editor, Applied Probability, Department of Probability and Statistics, The University, Sheffield S3 7RH, UK. The price of back numbers varies from volume to volume, and enquiries should be sent to the Executive Editor. Cheques, money orders, etc. should be made out to *Applied Probability*; cheques on US, UK and Australian banks will be acceptable.

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 *Journal of Applied Probability* 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 of the *Journal* not to accept for publication papers which cannot appear in print within 15 months of the date of receipt of the final version. Authors will receive 50 reprints of their papers free, and joint authors a proportional share of this number. Additional reprints will be provided 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 in the *Journal*. Scripts should be typewritten, using double spacing, and at least one copy should be on one side of the paper only. Each paper should be accompanied by

(i) a short abstract of approximately 4–10 lines giving a non-mathematical description of the subject matter and results;

(ii) a list of keywords detailing the contents for the purpose of computerised information retrieval;

(iii) primary and secondary classifications using 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 on application to the Applied Probability Office.

For efficiency in processing, authors are requested to send three copies of all submissions to the Applied Probability Office in Sheffield, rather than to individual editors. Authors overseas are asked to ensure that their submissions are sent by airmail. The Editor-in-Chief and the Applied Probability Office are in regular contact and full details of all papers submitted are available to Professor Heyde at The Australian National University in Canberra.

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 \$00.50 per copy, plus .10 per page is paid directly to CCC, 27 Congress St., Salem, MA 01970, USA. 0021-9002/93 \$00.50+ .10.

Volume 30 Number 2

Research Papers

- 275 PETER DONNELLY, THOMAS KURTZ AND PAUL MARJORAM. Correlation and variability in birth processes
- 285 N. TSANTAS AND P.-C. G. VASSILIOU. The non-homogeneous Markov system in a stochastic environment
- 302 MEI-LING TING LEE AND G. ALEX WHITMORE. Stochastic processes directed by randomized time
- 315 JEAN DIEBOLT AND DOMINIQUE GUÉGAN. Tail behaviour of the stationary density of general non-linear autoregressive processes of order 1
- 330 DALE N. ANDERSON AND BARRY C. ARNOLD. Linnik distributions and processes
- 341 NADER EBRAHIMI. More predictable, less predictable and stable counting processes
- 353 RAY WATSON AND PAUL YIP. A bivariate counting process
- 365 SØREN ASMUSSEN AND GER KOOLE. Marked point processes as limits of Markovian arrival streams
- 373 HANS-JÜRGEN WITTE. Some characterizations of exponential or geometric distributions in a non-stationary record value model
- 382 HIDEKI TANEMURA. Behavior of the supercritical phase of a continuum percolation model on \mathbb{R}^d
- 397 SUOJIN WANG. Saddlepoint approximations in conditional inference
- 405 O. L. V. COSTA. Discretizations for the average impulse control of piecewise deterministic processes
- 421 MOSHE SHAKED AND J. GEORGE SHANTHIKUMAR. Dynamic conditional marginal distributions in reliability theory
- 429 BENJAMIN AVI-ITZHAK AND SHLOMO HALFIN. Servers in tandem with communication and manufacturing blocking
- 438 R. M. PHATARFOD. The geometricity of the limiting distributions in queues and dams
- 446 T. TAKINE, H. TAKAGI AND T. HASEGAWA. Analysis of an $M/G/1/K/N$ queue

Short Communications

- 455 L. BUTTELL, J. T. COX AND R. DURRETT. Estimating the critical values of stochastic growth models
- 462 K. JAYAKUMAR AND R. N. PILLAI. The first-order autoregressive Mittag-Leffler process
- 467 C. H. SIM. First-order autoregressive logistic processes
- 471 MIKHAIL REVYAKOV. Component allocation for a distributed system: reliability maximization
- 478 PANAYOTIS D. SPARAGGIS AND WEI-BO GONG. Optimal buffer allocation in a two-stage queueing system
- 483 JOSEF STEINEBACH AND HANQIN ZHANG. Note on the strong limiting behaviour of busy periods in $GI/G/1$ queues under heavy traffic
- 489 W. STADJE. A new look at the Moran dam
- 496 Correction