#### FIRST ANNOUNCEMENT

### SEVENTH CONFERENCE ON STOCHASTIC PROCESSES AND THEIR APPLICATIONS, 15–19 AUGUST 1977

# TWENTE UNIVERSITY OF TECHNOLOGY ENSCHEDE, NETHERLANDS

The Seventh Conference on Stochastic Processes and their Applications will be held at the Twente University of Technology from 15 to 19 August 1977. This conference will be sponsored by the Committee for Conferences on Stochastic Processes of the Bernoulli Society for Probability and Statistics.

About fifteen speakers are being invited to present lectures on both theoretical and applied topics in stochastic processes. In addition, there will be ample opportunity to present short contributed papers. Anyone wishing to receive future announcements or other information should write to the local organiser

Dr. J. H. A. de Smit, Department of Mathematics, Twente University of Technology, P.O. Box 217, Enschede, Netherlands.

## 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models can be usefully developed, and finally, (4) papers in Applied Probability presented at conferences which do not publish their proceedings.

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.

The Editorial Board consists of E. Sparre Andersen, V. D. Barnett, D. Blackwell, V. R. Cane, J. W. Cohen, B. Gnedenko, J. Hájek, E. J. Hannan, C. C. Heyde, J. Keilson, D. G. Kendall, J. F. C. Kingman, K. Krickeberg, R. M. Loynes, P. A. P. Moran, J. Neveu, K. R. Parthasarathy, N. U. Prabhu, R. Pyke, Č. A. B. Smith and L. Takács. The Editor-in-Chief is J. Gani, and the Editorial Office of the *Advances* is in the Department of Probability and Statistics, The University, Sheffield S3 7RH, England.

Volume 8 No. 4 of Advances contains the following papers:

SYMPOSIUM ON MATHEMATICAL GENETICS Liverpool, 5-6 April 1976 CONFERENCE ON PATTERNS AND PROCESSES IN THE PLANE Swansea, 25-27 September 1975

STANLEY SAWYER Branching diffusion processes in population genetics

MARCEL F. NEUTS Moment formulas for the Markov renewal branching process

PAUL D. FEIGIN Maximum likelihood estimation for continuous time stochastic processes

R. L. TWEEDIE Criteria for classifying general Markov chains

ARIE HORDIJK,

DONALD L. IGLEHART

AND ROLF

SCHASSBERGER Discrete time methods for simulating continuous time Markov chains

R. J. ADLER On generalising the notion of upcrossings to random fields

B. W. SILVERMAN Limit theorems for dissociated random variables

DAG TJØSTHEIM On random processes that are almost strict sense stationary DAG TJØSTHEIM Spectral generating operators for non-stationary processes

Subscription rates (per volume) for Advances in 1976 are the same as for the Journal, namely:

For libraries and institutions:

For individuals belonging to a recognised scientific society:

US\$43.20 £18.00 US\$14.40 £ 6.00

10% discount is allowed to subscribers who order current issues of both the *Journal* and *Advances* at the same time direct from the Editorial Office. The prices are as follows:

For libraries and institutions: US\$77.75 £32.40 For individuals: US\$25.90 £10.80

Prices of back issues on application to the Executive Editor.

Cheques made out on U.S., U.K. 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, England.

#### Subscription rates

Subscriptions (post free) for the 1976 volume of the *Journal* are: U.S. \$43.20, £stg. 18.00, for libraries and institutions;

U.S. \$14.40, £stg. 6.00, 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 and orders for back numbers should be sent to the Executive Editor, Miss M. Hitchcock, Department of Probability and Statistics, The University, Sheffield S3 7RH, England. 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 U.S., U.K. and Australian banks will be acceptable.

#### **Notes for Contributors**

#### Submission of papers

It is a condition of publication in the Journal of Applied Probability that papers shall not previously have appeared elsewhere, and will not be reprinted without the written permission of the Trust. The copyright of all published papers shall be vested in the Trust. It is the general policy of the *Journal* not to accept for publication papers which cannot appear in print within 15 months of their date of submission. 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.

Manuscripts should be written in English or French; manuscripts 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. Authors are requested to comply with the following instructions in submitting their papers:

Authors in Britain, Europe, North and South America should send three copies of their submissions to the Applied Probability Office in Sheffield.

Authors in Australasia and the Far East should send three copies of their submissions to the Editor-

in-Chief, Dr. J. Gani, in Canberra.

The Editor-in-Chief and the Applied Probability Office are in direct contact by Telex, and full details of the papers submitted either in Sheffield or Canberra are available in both centres.

Alternatively, authors may submit papers to any one of the Editors listed on the inside front cover. In this case, two copies of the submission should be sent to the Editor concerned, and one copy, with a copy of the covering letter, should be sent to the Applied Probability Office in Sheffield.

#### Journal conventions

It will be of help to the Editors if the following conventions are adopted:

- a) The manuscript should be typewritten, using double spacing, on one side of the paper only.
- b) Each paper submitted should be accompanied by
  - a short abstract of approximately 4-10 lines giving a non-mathematical description of the subject matter and results;
  - a list of keywords detailing the contents for the purpose of computerised information
- c) References should be indicated in the text by the name of the author(s) and the date, thus: Feller (1961), and the full references listed at the end of the article in alphabetical order. Journal references should include the title of the article cited, the title of the journal (abbreviated in the style of the *International Journal of Abstracts: Statistical Theory and Method*), the volume, and inclusive page numbers. Book references should give the full title, the publisher, and the place of publication. For

Feller, W. (1961) A simple proof of renewal theorems. Comm. Pure Appl. Math. 14, 285-293. Robinson, E. A. (1959) An Introduction to Infinitely Many Variates. Griffin, London.

d) Type faces should be carefully distinguished on the manuscript using the following standard methods of marking:

Italic capitals (T, I, R) and lower case letters (t, i, r) should be underlined once, e.g. T, I, R, t, t, r. Bold-face capitals (T, I, R) and lower case letters (t, i, r) should have a curly underline, e.g., T, L, R, t, i, r. Greek characters  $(\alpha, \beta, \theta)$  and script letters  $(\mathcal{J}, \mathcal{J}, \mathcal{R})$  should be carefully drawn and identified when first used by a marginal note of the form ' $\alpha$ —lower case Greek alpha' or ' $\Re$ —script R'.

e) Indices and subscripts should be clearly distinguished, using the marking \$\frac{4}{4}\$ where necessary.

Authors will receive only first proofs for correction; charges will be made for excessive alteration to these

Printed in Israel at the Jerusalem Academic Press, P.O.B. 2390, Jerusalem,

### CONTENTS

### Volume 13

### Number 4

### December 1976

### Research Papers

G. A. WATTERSON	639	The stationary distribution of the infinitely- many neutral alleles diffusion model
RIGHARD J. KRYSCIO AND ROY SAUNDERS	652	A note on the cost of carrier-borne, right-shift, epidemic models
PETER J. DIGGLE	662	A spatial stochastic model of inter-plant competition
BYRON J. T. MORGAN AND	672	On an approximation made when analysing
JOHN P. HINDE	-	stochastic processes
KARMESHU	684	Motion of a particle in a velocity-dependent random force
DAVID BURMAN	696	Estimation of transition probabilities in a multi- particle semi-Markov system
GEORGES MATHERON	707	La formule de Crofton pour les sections épaisses
PAMELA DAVY	714	Projected thick sections through multi-dimensional particle aggregates
M. ROSENBLATT	723	Fractional integrals of stationary processes and the central limit theorem
N. VERAVERBEKE AND	733	The exponential rate of convergence of the distri-
J. L. TEUGELS		bution of the maximum of a random walk. Part II
ROBERT L. WARDROP	741	Some asymptotic results for optimal stopping based on capture times
MENACHEM BERG	751	A proof of optimality for age replacement policies
D. W. BALMER	760	On a quickest detection problem with variable monitoring
DONALD P. GAVER AND	768	Gaussian approximations to service problems:
JOHN P. LEHOCZKY		a communication system example
INGE S. HELLAND AND	781	On a general random exchange model
TRYGVE S. NILSEN		
		Short Communications
J. RADCLIFFE	791	
JEAN CHESSON	795	A non-central multivariate hypergeometric dis- tribution arising from biased sampling with ap- plication to selective predation
R. A. DONEY	798	A note on the subcritical generalized age-depen-
	.,,	dent branching process
FRED M. HOPPE	804	On a result of Rubin and Vere-Jones concerning subcritical branching processes
HOLGER ROOTZÉN	809	A note on the central limit theorem for doubly stochastic Poisson processes
ÉRARD LETAC, PIERRE MAZET	814	A note on left-continuous random walks
AND GÉRARD SCHIFFMAN M. AHSANULLAH	910	On a characterization of the amount of the
M. ARSANULLAH	818	On a characterization of the exponential dis- tribution by order statistics
M. BRETH	823	On a recurrence of Steck
ROBERT C. WANG	826	Computing optimal quality control policies — two
		actions
J. MICHAEL HARRISON AND	833	On the virtual and actual waiting time distri-
AUSTIN J. LEMOINE		butions of a GI/G/1 queue