

THE ANNALS of STATISTICS

ISSN (0090-5364)

AN OFFICIAL JOURNAL OF THE
INSTITUTE OF MATHEMATICAL STATISTICS

Articles

On predictive least squares principles	C. Z. WEI	1
Inclusion-exclusion-Bonferroni identities and inequalities for discrete tube-like problems via Euler characteristics	DANIEL Q. NAIMAN AND HENRY P. WYNN	43
Nonparametric function estimation involving time series	YOUNG K. TRUONG AND CHARLES J. STONE	77
Asymptotic normality of the recursive kernel regression estimate under dependence conditions	GEORGE G. ROUSSAS AND LANH T. TRAN	98
On bootstrapping kernel spectral estimates	J. FRANKE AND W. HÄRDLE	121
Relaxed boundary smoothing splines	GARY W. OEHLERT	146
Sampling designs for estimating integrals of stochastic processes	KARIM BENHENNI AND STAMATIS CAMBANIS	161
Identification of echelon canonical forms for vector linear processes using least squares	D. S. POSKITT	195
Optimal designs for comparing test treatments with a control utilizing prior information	DIBYEN MAJUMDAR	216
Optimal designs for a class of polynomials of odd or even degree	H. DETTE	238
Product partition models for change point problems	DANIEL BARRY AND J. A. HARTIGAN	260
Testing exponentiality against IDMRL distributions with unknown change point	D. L. HAWKINS, SUBHASH KOCHAR AND CLIVE LOADER	280
An optimal variable cell histogram based on the sample spacings	YUICHIRO KANAZAWA	291
Regression rank scores and regression quantiles	C. GUTENBRUNNER AND J. JUREČKOVÁ	305
Optimum robust estimation of linear aspects in conditionally contaminated linear models	VIKTOR KUROTCHKA AND CHRISTINE MÜLLER	331
Robust direction estimation	XUMING HE AND DOUGLAS G. SIMPSON	351
Efficiency and robustness in resampling	REGINA Y. LIU AND KESAR SINGH	370
Generalized M -estimators for errors-in-variables regression	CHI-LUN CHENG AND JOHN W. VAN NESS	385.
Highly efficient estimators of multivariate location with high breakdown point	HENDRIK P. LOPUHAÄ	398
Smoothing in adaptive estimation	JULIAN J. FARAWAY	414
Approximation of stochastic integrals with applications to goodness-of-fit tests	ALEX J. KONING	428
On consistency of a class of estimators for exponential families of Markov random fields on the lattice	FRANCIS COMETS	455
On the last time and the number of times an estimator is more than ε from its target value	NILS LID HJORT AND GRETE FENSTAD	469
Estimation of accuracy in testing	JUNN TZON HWANG, GEORGE CASELLA, CHRISTIAN ROBERT, MARTIN T. WELLS AND ROGER H. FARRELL	490
The admissibility of the linear interpolation estimator of the population total	GLEN MEEDEN	510
Permutational extreme values of autocorrelation coefficients and a Pitman test against serial dependence	MARC HALLIN, GUY MÉLARD AND XAVIER MILHAUD	523
Some inequalities about the Kaplan-Meier estimator	SONG YANG	535
Renormalization and white noise approximation for nonparametric functional estimation problems	MARK G. LOW	545
Two-sided sequential tests	LAWRENCE D. BROWN AND EITAN GREENSHTEIN	555
A sequential procedure with asymptotically negative regret for estimating a normal mean	YOSHIKAZU TAKADA	562
A pure-tail ordering based on the ratio of the quantile functions	JAVIER ROJO	570
Asymptotic ancillarity and conditional inference for stochastic processes	TREVOR J. SWEETING	580

continues on back cover

Vol. 20, No. 1—March 1992

INSTITUTE OF MATHEMATICAL STATISTICS

(Organized September 12, 1935)

The purpose of the Institute is to foster the development and dissemination of the theory and applications of statistics and probability.

OFFICERS AND EDITORS

- President:** Willem R. van Zwet, Department of Mathematics, University of Leiden, P.O. Box 9512, 2300 RA Leiden, The Netherlands
- President-Elect:** Lawrence D. Brown, Department of Mathematics, White Hall, Cornell University, Ithaca, New York 14853-7901
- Past President:** David O. Siegmund, Department of Statistics, Sequoia Hall, Stanford University, Stanford, California 94305-5092
- Executive Secretary:** Diane M. Lambert, AT&T Bell Laboratories, 600 Mountain Avenue, Room 2C-256, Murray Hill, New Jersey 07974
- Treasurer:** Jessica Utts, Division of Statistics, University of California, Davis. *Please send correspondence to:* IMS Business Office, 3401 Investment Boulevard #7, Hayward, California 94545
- Program Secretary:** Iain M. Johnstone, Division of Biostatistics, HRP Building, Room 10, Stanford University, Stanford, California 94305-5092
- Editor, *The Annals of Statistics*:** Michael Woodroffe, Department of Statistics, Mason Hall, University of Michigan, Ann Arbor, Michigan 48109-1027
- Editor, *The Annals of Probability*:** Burgess Davis, Departments of Mathematics and Statistics, Purdue University, West Lafayette, Indiana 47907
- Editor, *The Annals of Applied Probability*:** J. Michael Steele, Department of Statistics, University of Pennsylvania, Philadelphia, Pennsylvania 19104-6302
- Executive Editor, *Statistical Science*:** Robert E. Kass, Department of Statistics, Carnegie Mellon University, Pittsburgh, Pennsylvania 15213
- Editor, *The IMS Bulletin*:** George P. H. Styan, Department of Mathematics and Statistics, Burnside Hall, McGill University, 805 Sherbrooke Street West, Montreal PQ, Canada H3A 2K6
- Editor, *The IMS Lecture Notes—Monograph Series*:** Robert J. Serfling, Department of Mathematical Sciences, Johns Hopkins University, Baltimore, Maryland 21218
- Managing Editor:** Roger L. Berger, Department of Statistics, Box 8203, North Carolina State University, Raleigh, North Carolina 27695
- Managing Editor:** Robert Smythe, Department of Statistics, George Washington University, 2201 G Street N.W., Washington, D.C. 20052.

Journals. The scientific journals of the Institute are *The Annals of Applied Probability*, *The Annals of Probability*, *The Annals of Statistics* and *Statistical Science*. The news organ of the Institute is *The Institute of Mathematical Statistics Bulletin*.

Individual and Organizational Memberships. All *individual members* pay basic membership dues of \$40 plus \$10 for *The IMS Bulletin*. Each regular member must elect to receive at least one scientific journal for an additional amount, as follows: *The Annals of Applied Probability* (\$10), *The Annals of Probability* (\$20), *The Annals of Statistics* (\$20) or *Statistical Science* (\$10). Of the total dues paid, \$24 is allocated to *The IMS Bulletin* and the remaining amount is allocated equally among the scientific journal(s) received. Reduced membership dues are available to full-time students, permanent residents of countries designated by the IMS Council and retired members. Retired members may elect to receive *The IMS Bulletin* only for \$20. *Organizational memberships* are available to nonprofit organizations at \$425 per year and to for-profit organizations at \$700 per year. Organizational memberships include two multiple-readership copies of all IMS journals in addition to other benefits specified for each category (details available from the IMS Business Office).

Individual and General Subscriptions. Subscriptions are available on a calendar-year basis. *Individual subscriptions* are for the personal use of the subscriber and must be in the name of, paid directly by, and mailed to an individual. Individual subscriptions for 1992 are available to *The Annals of Applied Probability* (\$70), *The Annals of Probability* (\$80), *The Annals of Statistics* (\$80), *The IMS Bulletin* (\$45) and *Statistical Science* (\$70). *General subscriptions* are for libraries, institutions and any multiple-readership use. General subscriptions for 1992 are available to *The Annals of Applied Probability* (\$70), *The Annals of Probability* and *The Annals of Applied Probability* (\$180), *The Annals of Statistics* (\$130), *The IMS Bulletin* (\$50) and *Statistical Science* (\$75). Air mail rates for delivery outside North America are \$80 per title (excluding *The IMS Bulletin*).

Permissions policy. Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by the Institute of Mathematical Statistics, provided that the base fee of \$5.00 per copy, plus \$.00 per page is paid directly to the Copyright Clearance Center, 27 Congress Street, Salem, Massachusetts 01970. For those organizations that have been granted a photocopy license by CCC, a separate system of payment has been arranged. The fee code for users of the Transactional Reporting Service is: 0091-1798/92 \$5.00 + .00.

Correspondence. Mail to IMS should be sent to the IMS Business Office (membership, subscriptions, claims, copyright permissions, advertising, back issues), the Editor of the appropriate journal (submissions, editorial content) or the Production Editor, Patrick Kelly, Department of Statistics, University of Pennsylvania, Philadelphia, Pennsylvania 19104-6302.

***The Annals of Statistics* (ISSN 0090-5364)**, Volume 20, Number 1, March, 1992. Published quarterly by the Institute of Mathematical Statistics, 3401 Investment Boulevard #7, Hayward, California 94545. Second-class postage paid at Hayward, California and at additional mailing offices.

POSTMASTER: Send address changes to *The Annals of Statistics*, Institute of Mathematical Statistics, 3401 Investment Boulevard #7, Hayward, California 94545.

EDITORIAL STAFF

EDITOR

MICHAEL WOODROOFE

ASSOCIATE EDITORS

OLE E. BARNDORFF-NIELSEN
JAMES O. BERGER
PETER J. BICKEL
LAWRENCE D. BROWN
CHING-SHUI CHENG
DAVID L. DONOHO
FRIEDRICH GOETZE

LOUIS GORDON
PIET GROENEBOOM
PETER HALL
NANCY E. HECKMAN
P. JEGANATHAN
ROBERT W. KEENER
KER-CHAU LI
JOHN I. MARDEN

IAN W. MCKEAGUE
YA'ACOV RITOV
THOMAS SELLKE
DAVID O. SIEGMUND
CHING-ZONG WEI
JON A. WELLNER
GRACE L. YANG

EDITORIAL ASSISTANT

LINORE LATHAM

MANAGING EDITOR

ROGER L. BERGER

PRODUCTION EDITOR

PATRICK KELLY

EDITORIAL ASSISTANT

PEGGY T. MORRIS

PAST EDITORS

THE ANNALS OF MATHEMATICAL STATISTICS

H. C. CARVER, 1930–1938
S. S. WILKS, 1938–1949
T. W. ANDERSON, 1950–1952
E. L. LEHMANN, 1953–1955
T. E. HARRIS, 1955–1958

WILLIAM KRUSKAL, 1958–1961
J. L. HODGES, JR., 1961–1964
D. L. BURKHOLDER, 1964–1967
Z. W. BIRNBAUM, 1967–1970
INGRAM OLKIN, 1970–1972

THE ANNALS OF STATISTICS

INGRAM OLKIN, 1972–1973
I. R. SAVAGE, 1974–1976
RUPERT G. MILLER, JR., 1977–1979
DAVID V. HINKLEY, 1980–1982
MICHAEL D. PERLMAN, 1983–1985
WILLEM R. VAN ZWET, 1986–1988
ARTHUR COHEN, 1988–1991

THE ANNALS OF PROBABILITY

RONALD PYKE, 1972–1975
PATRICK BILLINGSLEY, 1976–1978
R. M. DUDLEY, 1979–1981
HARRY KESTEN, 1982–1984
THOMAS M. LIGGETT, 1985–1987
PETER NEY, 1988–1990

EDITORIAL POLICY

The main purpose of *The Annals of Statistics*, *The Annals of Probability* and *The Annals of Applied Probability* is to publish significant contributions to the theory of statistics and probability and their applications. The emphasis is on importance and interest; formal novelty and mathematical correctness alone are not sufficient for publication. Especially appropriate are authoritative expository papers and surveys of areas in vigorous development. Because statistics is an evolving discipline, the Editors of *The Annals of Statistics* take a broad view of its domain and welcome papers in interface areas. Contributors to *The Annals of Statistics* should review the editorial in the January 1980 issue. All papers are refereed.

ADDITIONAL GUIDELINES FOR PREPARING PAPERS FOR THE ANNALS OF STATISTICS

1. The introduction and/or abstract should contain a statement pertaining to the statistical importance of the paper. Sometimes this is clear when reference is made to previous work. Statistical importance, not mathematical complexity for its own sake, is the prime criterion for publication.
2. The introduction should be thorough and contain clear yet nontechnical descriptions of the important results. Furthermore, the introduction should give a clear indication of where in the paper the main results and conclusions are to be found.
3. In papers where the formulation is general and mathematically abstract, when appropriate, the author should provide a short development of a special case, an example, or an illustration of the results. If possible, the special case or example should be in the introduction or shortly thereafter.
4. The manuscript should be proofread thoroughly before being submitted. Manuscripts with many typographical errors will cause unnecessary delays and may require resubmission.

IMS CORPORATE MEMBERS

THE AEROSPACE CORPORATION
Los Angeles, California

AT & T BELL LABORATORIES
Murray Hill, New Jersey

BELL COMMUNICATIONS RESEARCH
Morristown, New Jersey

GENERAL MOTORS CORPORATION
Research Laboratories
Warren, Michigan

INTERNATIONAL BUSINESS MACHINES CORP
Thomas J. Watson Research Center
Yorktown Heights, New York

SPRINGER-VERLAG NEW YORK INCORPORATED
New York, New York

IMS INSTITUTIONAL MEMBERS

ACADEMIA SINICA
Inst of Statistical Science
Taipei, Taiwan

AMERICAN UNIVERSITY
Dept of Mathematics and Statistics
Washington, DC

ARIZONA STATE UNIVERSITY
Committee on Statistics
Dept of Mathematics and Dept of
Decision and Information Systems
Tempe, Arizona

AUSTRALIAN NATIONAL UNIVERSITY
Canberra, ACT, Australia

BOWLING GREEN STATE UNIVERSITY
Dept of Mathematics and Statistics
Bowling Green, Ohio

CALIFORNIA STATE UNIVERSITY
AT FULLERTON
Dept of Mathematics
Fullerton, California

CASE WESTERN RESERVE UNIVERSITY
Dept of Mathematics and Statistics
Cleveland, Ohio

CORNELL UNIVERSITY
Dept of Mathematics
Ithaca, New York

DALHOUSIE UNIVERSITY
Killam Memorial Library
Halifax, Nova Scotia, Canada

FLORIDA STATE UNIVERSITY
Dept of Statistics
Tallahassee, Florida

GEORGE WASHINGTON UNIVERSITY
Dept of Statistics
Washington, DC

HARVARD UNIVERSITY
Dept of Biostatistics
Boston, Massachusetts

HARVARD UNIVERSITY
Dept of Statistics
Cambridge, Massachusetts

INDIANA UNIVERSITY
Dept of Mathematics
Bloomington, Indiana

INSTITUTO MEXICANO
DEL PETROLEO
Mexico, DF, Mexico

IOWA STATE UNIVERSITY
Dept of Stat and Statistical Lab
Ames, Iowa

JOHNS HOPKINS UNIVERSITY
Depts of Biostatistics
and Mathematical Sciences
Baltimore, Maryland

KANSAS STATE UNIVERSITY
Dept of Statistics
Manhattan, Kansas

MARA INSTITUTE OF TECHNOLOGY
Selangor, Malaysia

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Dept of Mathematics
Cambridge, Massachusetts

MIAMI UNIVERSITY LIBRARY
Oxford, Ohio

MICHIGAN STATE UNIVERSITY
Dept of Statistics and Probability
East Lansing, Michigan

NATIONAL SECURITY AGENCY
Fort George G. Meade, Maryland

NEW MEXICO STATE UNIVERSITY
Dept of Mathematical Sciences
Las Cruces, New Mexico

NORTH CAROLINA STATE UNIVERSITY
Dept of Statistics
Raleigh, North Carolina

NORTH DAKOTA STATE UNIVERSITY LIBRARY
Fargo, North Dakota

NORTHERN ILLINOIS UNIVERSITY
Div of Statistics
DeKalb, Illinois

OHIO STATE UNIVERSITY
Dept of Statistics
Columbus, Ohio

OREGON STATE UNIVERSITY
Dept of Statistics
Corvallis, Oregon

PENNSYLVANIA STATE UNIVERSITY
Dept of Statistics
University Park, Pennsylvania

PRINCETON UNIVERSITY LIBRARY
Princeton, New Jersey

PURDUE UNIVERSITY LIBRARY
West Lafayette, Indiana

RICE UNIVERSITY LIBRARY
Houston, Texas

THE ROCKEFELLER UNIVERSITY LIBRARY
New York, New York

SIMON FRASER UNIVERSITY
Dept of Mathematics and Statistics
Burnaby, British Columbia, Canada

SOUTHERN ILLINOIS UNIVERSITY
Dept of Mathematics and Statistics
Edwardsville, Illinois

STANFORD UNIVERSITY
Dept of Statistics
Stanford, California

SYRACUSE UNIVERSITY
Dept of Mathematics
Syracuse, New York

TEMPLE UNIVERSITY
Dept of Mathematics
Philadelphia, Pennsylvania

TEXAS TECH UNIVERSITY
Dept of Mathematics
Lubbock, Texas

UNIVERSITY OF ALBERTA
Dept of Statistics
and Applied Probability
Edmonton, Alberta, Canada

UNIVERSITY OF ARIZONA
Dept of Mathematics
Tucson, Arizona

UNIVERSITY OF BRITISH COLUMBIA
Dept of Statistics
Vancouver, British Columbia, Canada

UNIVERSITY OF CALGARY
Dept of Mathematics and Statistics
Calgary, Alberta, Canada

UNIVERSITY OF CALIFORNIA
Dept of Statistics
Berkeley, California

UNIVERSITY OF CALIFORNIA
Div of Statistics
Davis, California

UNIVERSITY OF CONNECTICUT
Dept of Statistics
Storrs, Connecticut

UNIVERSITY OF FLORIDA
Dept of Statistics
Gainesville, Florida

UNIVERSITY OF GEORGIA
Dept of Statistics
Athens, Georgia

UNIVERSITY OF ILLINOIS
Dept of Statistics
Champaign, Illinois

UNIVERSITY OF ILLINOIS AT CHICAGO
Dept of Math, Stat and Comp Sci
Chicago, Illinois

UNIVERSITY OF IOWA
Dept of Statistics and Actuarial Sci
Iowa City, Iowa

UNIVERSITY OF MARYLAND
Dept of Mathematics
College Park, Maryland

UNIVERSITY OF MASSACHUSETTS
Dept of Mathematics and Statistics
Amherst, Massachusetts

UNIVERSITY OF MICHIGAN
Dept of Statistics
Ann Arbor, Michigan

UNIVERSITY OF MINNESOTA
School of Statistics
Minneapolis, Minnesota

UNIVERSITY OF MISSOURI
Ellis Library
Columbia, Missouri

UNIVERSITY OF MONTREAL
Dept of Mathematics
Montreal, Quebec, Canada

UNIVERSITY OF NEBRASKA
Dept of Mathematics and Statistics
Lincoln, Nebraska

UNIVERSITY OF NEW BRUNSWICK LIBRARY
Fredericton, New Brunswick, Canada

UNIVERSITY OF NEW MEXICO
Dept of Mathematics and Statistics
Albuquerque, New Mexico

UNIVERSITY OF NORTH CAROLINA
Dept of Statistics
Chapel Hill, North Carolina

UNIVERSITY OF OREGON
Dept of Mathematics
Eugene, Oregon

UNIVERSITY OF PENNSYLVANIA
Dept of Statistics
Philadelphia, Pennsylvania

UNIVERSITY OF SOUTH CAROLINA
Dept of Statistics
Columbia, South Carolina

UNIVERSITY OF STOCKHOLM
Inst of Actuarial Math and Math Stat
Stockholm, Sweden

UNIVERSITY OF TEXAS AT AUSTIN
Dept of Mathematics
Austin, Texas

UNIVERSITY OF VICTORIA
Dept of Mathematics
Victoria, British Columbia, Canada

UNIVERSITY OF VIRGINIA
Dept of Mathematics
Charlottesville, Virginia

UNIVERSITY OF WATERLOO
Dept of Statistics and Actuarial Sci
Waterloo, Ontario, Canada

VIRGINIA COMMONWEALTH UNIVERSITY
Dept of Mathematical Sciences
Richmond, Virginia

VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY
Dept of Statistics
Blacksburg, Virginia

WAYNE STATE UNIVERSITY
Dept of Mathematics
Detroit, Michigan

YORK UNIVERSITY
Dept of Mathematics
Downsview, Ontario, Canada

THE ANNALS OF STATISTICS

INSTRUCTIONS FOR AUTHORS

Submission of Papers. Papers to be submitted for publication should be sent to the Editor of the *Annals of Statistics*. (For current address, see the latest issue of the *Annals*.) **Four copies** should be submitted on paper that will take ink corrections. The manuscript will *not* normally be returned to the author; when expressly requested by the author, one copy of the manuscript will be returned. All manuscripts should be accompanied by a cover letter.

Preparation of Manuscripts. Manuscripts should be typewritten, entirely double-spaced, including references, with wide margins at sides, top and bottom. All copies must be completely legible. When technical reports are submitted, all extraneous sheets and covers must be removed. Typists should check an issue of the *Annals* for style.

Submission of Reference Papers. Four copies of unpublished or not easily available papers cited in the manuscript should be submitted with the manuscript.

Title. The title should be descriptive and as concise as is feasible, i.e., it should indicate the topic of the paper as clearly as possible, but every word in it should be pertinent.

Abbreviated Title. An abbreviated title to be used as a running head is also required. This should normally not exceed 35 characters. For example, an article with the title "The Curvature of a Statistical Model, with Applications to Large-Sample Likelihood Methods," could have the running head, "Curvature of Statistical Model" or possibly "Asymptotics of Likelihood Methods," depending on the emphasis to be conveyed.

Affiliation. Indicate your present institutional affiliation as you would like it to appear.

Summary. Each manuscript is required to contain a summary, clearly separated from the rest of the paper, which will be printed immediately after the title. Its main purpose is to inform the reader quickly of the nature and results of the paper; it may also be used as an aid in retrieving information. The length of a summary will clearly depend on the length and difficulty of the paper, but in general it should not exceed 150 words. Formulas should be used as sparingly as possible within the summary. The summary should not make reference to results or formulas in the body of the paper—it should be self-contained.

Footnotes. Footnotes should not be used, except as described under Title Page Footnotes below. Such information should be included within the text.

Title Page Footnotes. Included as a footnote on page 1 should be the headings:

- AMS 1980 subject classifications. Primary—; secondary—.
- Key words and phrases.

The classification numbers representing the primary and secondary subjects of the article may be found with instructions for its use in the *Mathematical Reviews Annual Subject Index-1980*. The key words and phrases should describe the subject matter of the article; generally they should be taken from the body of the paper.

Acknowledgment of support. Grants and contracts should also be included in this footnote.

Identification of Symbols. Manuscripts for publication should be clearly prepared to insure that all symbols are properly identified. Distinguish between "oh" and "zero," "ell" and "one," "epsilon" and "element of," "summation" and "capital sigma," etc. Indicate also when special type is required (Greek, German, script, boldface, etc.); unless indicated otherwise, formula letters will be set in italics. Acronyms should be introduced sparingly. Any handwritten symbols should be clearly identified.

Figures and Tables. Figures, charts, and diagrams should be prepared in a form suitable for photographic reproduction and should be professionally drawn twice the size they are to be printed. (These need not be submitted until the paper has been accepted for publication.) The printer does not improve upon the quality of the figures submitted. Tables should be typed on separate pages with accompanying footnotes immediately below the table.

Formulas. Fractions *in the text* are preferably written with the solidus or negative exponent; thus, $(a + b)/(c + d)$ is preferred to $\frac{a + b}{c + d}$, and $(2\pi)^{-1}$ or $1/(2\pi)$ to $\frac{1}{2\pi}$. Also, $a^{b(c)}$ and $a_{b(c)}$ are preferred to a^{bc} and a_{bc} , respectively. Complicated exponentials should be represented with the symbol exp. A fractional exponent is preferable to a radical sign.

References. References should be typed double-spaced and should follow the style:

Kiefer, J. C. (1976). Admissibility of conditional confidence procedures. *Ann. Statist.* 4 836–865.

In textual material, the format "... Keifer (1976)..." should be used. Multiple references can be distinguished as "... Kiefer (1976a)..." Abbreviations for journals should be taken from a current index issue of *Mathematical Reviews*.

Addresses. The permanent address of each author should be typed following the references.

Copyright, Page Charges and Offprints. Page charges are \$45 per printed page. Payment of some or all of the estimated page charges associated with articles is strongly encouraged. The editorial review of articles and administration of page charges are completely separate activities. Manuscripts are reviewed and accepted prior to determining whether page charges will be paid.

Corresponding authors receive 25 gratis offprints. Offprints of discussion articles include the main article(s), discussion(s) and rejoinder(s) as a package. Corresponding authors of main articles receive 25 gratis offprints; corresponding discussants receive 10 gratis offprints. Additional offprints may be purchased by using the IMS Offprint Purchase Order Form accompanying the galley.

Copyright transfer, page charges and offprints are the responsibility of the IMS Business Manager.

Galley Proofs. The corresponding author will ordinarily receive galley proofs. Corrected galley proofs should be sent to AOS Redactory, Science Typographers, Inc., 15 Industrial Boulevard, Medford, NY 11763.

Correspondence. All correspondence with the editor must refer to the manuscript number of the paper. This number will be on the card sent to the author acknowledging receipt of the article.