# Proceedings of the CAMBRIDGE PHILOSOPHICAL SOCIETY

### (MATHEMATICAL AND PHYSICAL SCIENCES)

## VOLUME 63

### PART 3



CAMBRIDGE UNIVERSITY PRESS BENTLEY HOUSE, 200 EUSTON ROAD, LONDON, N.W. 1 AMERICAN BRANCH: 32 EAST 57TH STREET, NEW YORK, N.Y. 10022

# Price Fifty-five Shillings Net (U.S.A. \$9.50)

Subscription price per volume £10 net post free (\$34.50 in U.S.A.)

July 1967

The following papers have been accepted for publication and will appear shortly:

BAJPAI, S. D. Some integrals involving Gauss's hypergeometric function and Meyer's *G*-function. GRIMSHAW, R. The refraction of sound pulses.

SHAH, K. B. Energy of a charged particle in Møller's Tetrad Theory.

LOVE, E. R. Two more hypergeometric integral equations.

LAITONE, E. V. Seiches over parabolic bottoms.

KEER, L. M. Mixed boundary value problems for an elastic half-space.

CHADWICK, P. and TROWBRIDGE, E. A. Oscillations of a rigid sphere embedded in an infinite elastic solid, II. Rectilinear oscillations.

CHADWICK, P. and TROWBRIDGE, E. A. Oscillations of a rigid sphere embedded in an infinite elastic solid, I. Torsional oscillations.

CHADWICK, P. and TROWBRIDGE, E. A. Elastic wave fields generated by scalar wave functions.

WALKER, P. L. Lipschitz classes on O-dimensional groups.

SAYER, F. P. and CALDER, C. C. Plane stress theories.

GREGORY, R. D. An expansion theorem applicable to problems of wave propagation in an elastic half-space containing a cavity.

SENETA, E. Finite approximations to infinite non-negative matrices.

### CONTENTS OF BIOLOGICAL REVIEWS Vol. 42, No. 2. May 1967

OBITUARY. HAROLD MUNRO FOX, 1889-1967.

C. FAVARGER. Cytologie et distribution des plantes.

R. H. WHITTAKER. Gradient analysis of vegetation.

M. H. HARDISTY. The numbers of vertebrate primordial germ cells.

J. S. ALEXANDROWICZ. Receptor organs in thoracic and abdominal muscles of Crustacea.

# Electronics Letters - IEE PERIODICAL

AN INTERNATIONAL PUBLICATION

# 'REQUIRED READING FOR THOSE WISHING TO KEEP ABREAST OF RESEARCH AND DEVELOPMENT'

Since its establishment in March 1965, ELECTRONICS LETTERS has published 650 letters from 23 countries on advanced research and development projects.

ELECTRONICS LETTERS each month gives the fastest publication of short communications yet obtained in this field—the interval between receipt and publication of a contribution is never more than six weeks and frequently as little as two weeks.

ELECTRONICS LETTERS covers all aspects of electronics and control, including such fields as circuit theory, satellite communication, solid-state devices, electroacoustics, computer design, medical electronics, control theory, microwave techniques, the properties of plasmas, semiconductors and magnetic materials, communication theory, quantum electronics etc.

The annual subscription is  $\pounds 4$  by surface mail,  $\pounds 9$  by airmail. The surface-mail rate for IEE members is 30s. per annum, and for members of societies with which the IEE has reciprocal arrangements for subscriptions to publications,  $\pounds 3$  per annum (airmail rates  $\pounds 6$ . 10s. and  $\pounds 8$ , respectively).

Write for a free specimen copy to:

PUBLICATIONS DEPARTMENT, IEE, SAVOY PLACE, LONDON WC2

### SIAM JOURNAL ON APPLIED MATHEMATICS

#### VOLUME 15, NUMBER 2, MARCH 1967

On the Asymptotic Behavior of Parameter-Dependent Functional Equations. R. D. BARNARD,

The Synthesis of Certain Subclasses of Tridiagonal Matrices with Prescribed Eigenvalues. ISRAEL NAVOT.

Decomposition of a Simi-Markov Process under a State Dependent Rule, E. ÇINLAR.

Note on a Paper by J. Spanier Concerning Monte Carlo Estimators. D. B. MACMILLAN.

On Construction and Properties of the Generalized Inverse. ARMEN G. FISHER.

Boundary Imperfections in the Buckling of Spherical Caps. FRANCES BAUER, HERBERT B. KELLER and EDWARD L. REISS.

Nonlinear Programming in Banach Space. P. P. VARAIYA.

Duality for Nonlinear Programming in a Banach Space. K. RITTER. An Allocation Model. D. L. IGLEHART and A. P. LAL-

CHANDANI. A Generalized Convolution Transformation. A. H.

ZEMANIAN. A Stochastic Multistage Multiproduct Investment Model

A Stochastic, Multistage, Multiproduct Investment Model. V. P. SREEDHARAN and H. H. WEIN. Series Representation of Generalized Temperature Functions, DEBORAH TEPPER HAIMO.

- Stability Inequalities for Semimonotonically Perturbed Nonhomogeneous Boundary Problems. KARL GUSTAF-SON.
- On the Stability of Solutions of the Navier-Stokes Equations and Convergence to Steady State. L. E. PAYNE.

On Determining Minimal Singularities for the Realizations of an Incidence Sequence. A. B. OWENS and H. M. TRENT.

On the Rayleigh Problem in Hydrodynamic Stability. D. H. SATTINGER.

Convergence of Successive Approximations for Nonlinear Two-Point Boundary Value Problems. W. J. Coles and T. L. SHERMAN.

The Number of Linearly Inducible Orderings of Points in d-Space. THOMAS M. COVER.

On Determinable Classes of Signals and Linear Channels. P. P. VARAIYA.

Nonlinear Effects in Transmission Lines. E. CUMBERBATCH.

Sufficiency Proofs for the Problem of the Optimum Transversal Contour. ANGELO MIELE and DAVID G. HULL.

The Journal is published bi-monthly. Subscriptions are \$20.00 per volume Orders should be placed with the

SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS

33 So. 17th St., Philadelphia, Pennsylvania, 19103 U.S.A.

Proc. Camb. Phil. Soc. 63, 3

# **ROYAL STATISTICAL SOCIETY**

THE JOURNAL OF THE ROYAL STATISTICAL SOCIETY, SERIES B (METHODO-LOGICAL), three issues a year, annual subscription post free £4. 2s. (U.S. \$12), price each part 35s.

### Volume 29, Part 2, 1967

#### CONTENTS

The analysis of association among many variates (with Discussion). E. J. WILLIAMS.
On John's cyclic incomplete block designs. W. H. CLATWORTHY.
Formal expression which can be used for the determination of the operating characteristic and average sample number of a simple sequential test. K. W. KEMP.
A simple procedure for determining upper and lower limits for the average sample run length of a cumulative sum scheme. K. W. KEMP.
Models of the second kind in regression analysis. P. R. FISK.
Inferences concerning a population correlation coefficient from one or possibly two samples subsequent to a preliminary test of significance. S. R. SRIVASTAVA and T. A. BANCROFT.
On a special subset giving an irregular fractional replicate of a $2^n$ factorial experiment. K. S. BANERJEE and W. T. FEDERER.
Optimization of a hot rolling mill. D. C. DOWSON.
A non-parametric test for the bivariate two-sample location problem. K. V. MARDIA.
Non-homogeneous branching Poisson processes. P. A. W. LEWIS.
Methods of estimation involving discounting. W. G. GILCHRIST.
A change-over design for testing a treatment factor at four equally spaced levels. I. I. BERENBLUT.
Tests of hypotheses concerning matched samples. B. M. BENNETT.
Optimum utilization of auxiliary information: $\pi ps$ sampling of two units from a stratum. T. V. HANURAV.
On the choice of a strategy for a ratio method of estimation. T. J. RAO.
Considering statistical and time averages in a regulation problem. E. KOUNIAS.
On a class of Gaussian processes for which the mean rate of crossings is infinite. J. A. MCFADDEN.
Obtainable through any bookseller or direct from:
ROYAL STATISTICAL SOCIETY
21 BENTINCK STREET, LONDON, W.1