

JOURNAL of the AUSTRALIAN MATHEMATICAL SOCIETY

Series B — Applied Mathematics

Volume 36 Part 1

JULY 1994

Analysis of a differential equation occurring in the theory of flame fronts R. Grimshaw and J. Gan	1
Laplace transforms for superexponential functions Michael A. B. Deakin	17
On the solution of a nonlinear problem in cell membrane theory A. M. Arthurs and J. Clegg	26
Optimal driving strategies for a train journey with speed limits Peter Pudney and Phil Howlett	38
Convergence of discrete approximations for constrained minimization B. D. Craven	50
On two lemmas of Brown and Shepp having application to sum sets and fractals C. E. M. Pearce and J. E. Pečarić	60
A three-dimensional numerical model of the response of the Australian North West Shelf to tropical cyclones Songping Zhu and Jörg Imberger	64
The Taylor series for bandlimited signals M. A. Hernandez Veron	101
Controllability of nonlinear neutral Volterra integrodifferential systems K. Balachandran and P. Balasubramaniam	107
On an optimization problem with cost of rapid variation of control D. Idczak, K. Kibalczyk and S. Walczak	117
Correction: Poisson approximations for telecommunications networks T. C. Brown and P. K. Pollett	132

Set by TeXAdel, Adelaide, Australia.

Printed by Cushing-Malloy, Inc., Ann Arbor, Michigan, U.S.A.

The Journal of the Australian Mathematical Society began publication in 1959, and from 1975 appears in two series, Series A (Pure Mathematics and Statistics) and Series B (Applied Mathematics). Series B is published in volumes comprising four quarterly parts. Information about Series A and other publications of the Society may be found on the inside back cover.

It is the editorial policy of Series B to accept papers in any field of applied mathematics and related mathematical sciences. Novel applications of mathematics in real situations are especially welcomed. All papers should include some indication of applicability, and an introduction that can be understood by non-specialist readers from the whole applied mathematical community.

Editor of the Journal, Series B

C. E. M. PEARCE, Applied Mathematics Department, The University of Adelaide, S.A. 5005, Australia.

Associate Editors

B. D. CRAVEN
Department of Mathematics
University of Melbourne
Parkville Vic. 3052

R. H. J. GRIMSHAW
Department of Mathematics
Monash University
Clayton Vic. 3168

J. F. HARPER
Department of Mathematics
Victoria University of Wellington
P.O. Box 600
Wellington, New Zealand

J. M. HILL
Department of Mathematics
University of Wollongong
P.O. Box 1144
Wollongong N.S.W. 2500

C. A. HURST
Department of Physics and
Mathematical Physics
The University of Adelaide
S.A. 5005

P. KLOEDEN
Department of Computing and
Mathematics
Deakin University
Geelong Vic. 3217

M. R. OSBORNE
Program in Advanced
Computation
School of Mathematical Sciences
Australian National University
A.C.T. 0200

P. K. POLLETT
Department of Mathematics
University of Queensland
Qld 4072

S. M. SCOTT
School of Mathematical Sciences
Australian National University
A.C.T. 0200

K. L. TEO
Department of Mathematics
The University of Western
Australia
Nedlands W.A. 6009

E. O. TUCK
Applied Mathematics Department
The University of Adelaide
S.A. 5005

W. W. WOOD
Department of Mathematics
University of Melbourne
Parkville Vic. 3052

Assistant Editors

E. A. COUSINS, J. VAN DER HOEK, Applied Mathematics Department, The University of Adelaide, S.A. 5005, Australia.

Manuscripts (three copies) for publication should be sent to the editor or to an appropriate associate editor at the address given above. Such action is a representation by the author that the manuscript has not been copyrighted or published, and that it is not being considered for publication elsewhere.

Authors are asked to read the section "Preparation of Manuscripts" on the outside cover.

Irrespective of the number of authors, 100 free offprints of each copy are provided; additional offprints may be ordered at the expense of the authors.

Excessive costs incurred by the Society through corrections to or withdrawal of articles may be charged to the authors concerned.

Journal of the Australian Mathematical Society, Series B—Applied Mathematics (ISSN 0334-2700) is published quarterly for A\$158 (Members A\$23) per annum by the Australian Mathematical Society, Mathematics Department, Australian National University, ACT 0200, Australia. Second class postage is paid at Ann Arbor, Michigan 48106, USA. Postmaster: Send address change notices to Dr A. Howe, Journal of the Australian Mathematical Society, Mathematics Department, Australian National University, Canberra, ACT 0200, Australia.