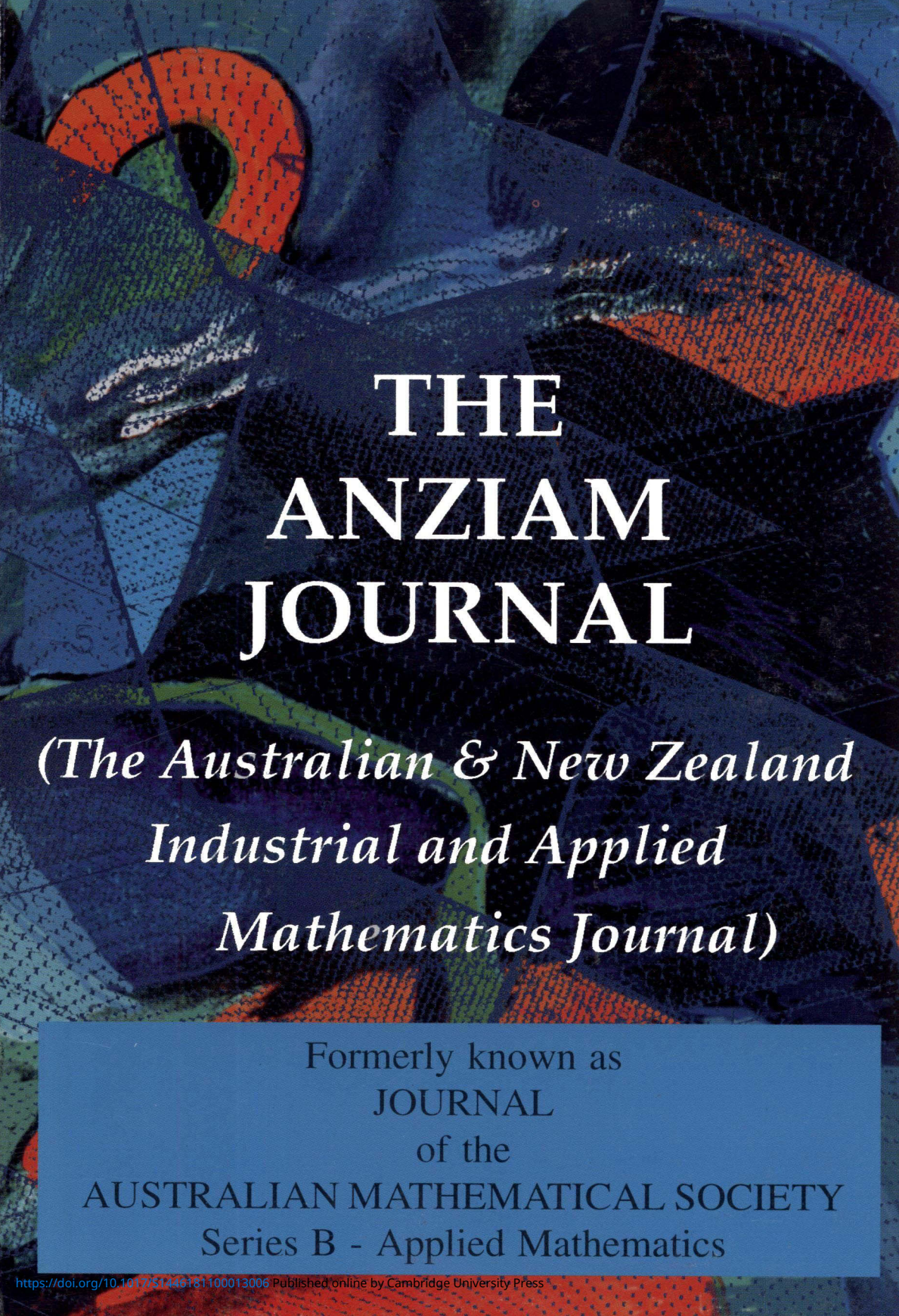

THE ANZIAM JOURNAL

(The Australian & New Zealand Industrial and Applied Mathematics Journal)

Formerly known as
JOURNAL
of the
AUSTRALIAN MATHEMATICAL SOCIETY
Series B - Applied Mathematics

https://doi.org/10.1017/S1446181100013006 Published online by Cambridge University Press

Editor of The ANZIAM Journal

C. E. M. PEARCE, Department of Applied Mathematics, The University of Adelaide, Australia, 5005; cpearce@maths.adelaide.edu.au .

Associate Editors

A. P. BASSOM
The University of Exeter
North Park Road
Exeter, Devon EX4QE
United Kingdom
AP.Bassom@ex.ac.uk

A. J. BRACKEN
Department of Mathematics
The University of Queensland
St. Lucia QLD 4072
ajb@maths.uq.edu.au

B. D. CRAVEN
Department of Mathematics
The University of Melbourne
VIC 3010
craven@ms.unimelb.edu.au

A. C. EBERHARD
Department of Mathematics
Royal Melbourne Institute of Technology
GPO Box 2476V
Melbourne VIC 3001
andrew.eberhard@ems.rmit.edu.au

L. K. FORBES
School of Mathematics and Physics
The University of Tasmania
Hobart TAS 7001
Larry.Forbes@utas.edu.au

J. M. HILL
Department of Mathematics
The University of Wollongong
PO Box 1144
Wollongong NSW 2500
j.hill@uow.edu.au

G. C. HOCKING
Department of Mathematics and Statistics
Murdoch University
Murdoch WA 6150
hocking@maths.uwa.edu.au

C. A. HURST
Department of Physics and Mathematical Physics
The University of Adelaide
Australia 5005
ahurst@physics.adelaide.edu.au

P. E. KLOEDEN
Fachbereich Mathematik
Johann Wolfgang Goethe Universität
D-60054 Frankfurt am Main
Germany
kloeden@math.uni-frankfurt.de

R. MCKIBBIN
Institute of Information and Mathematical Sciences
Massey University,
Albany Campus
Private Bag 102 904
North Shore Mail Centre
Auckland
New Zealand
R.McKibbin@massey.ac.nz

W. MCLEAN
Department of Applied Mathematics
University of New South Wales
Sydney NSW 2052
W.Mclean@unsw.edu.au

P. K. POLLETT
Department of Mathematics
The University of Queensland
QLD 4072
pkp@maths.uq.edu.au

D. RALPH
The Judge Institute of Management Studies
Cambridge University
Trumpington St
Cambridge CB2 1AG
England
dr241@cam.ac.uk

H. M. SRIVASTAVA
Department of Mathematics and Statistics
University of Victoria
Victoria B.C. V8W 3P4
Canada
hmsri@uvvm.uvic.ca

K. L. TEO
Department of Applied Mathematics
Hong Kong Polytechnic University
Hung Hom, Kowloon
Hong Kong
mateokl@polyu.edu.hk

A. TORDESILLAS
Department of Mathematics
The University of Melbourne
VIC 3010
A.Tordesillas@ms.unimelb.edu.au

J.-M. VANDEN-BROECK
School of Mathematics
The University of East Anglia
Norwich NR4 7TJ
England
J.Vanden-Broeck@uea.ac.uk

G. C. WAKE
Department of Mathematics and Statistics
The University of Canterbury
Private Bag 4800
Christchurch
New Zealand
g.wake@math.canterbury.ac.nz

G. J. WEIR
Applied Mathematics Centre
Industrial Research Ltd
PO Box 31310
Lower Hutt
New Zealand
g.weir@irl.cri.nz

Executive Editor

E. HUNT, Department of Applied Mathematics, The University of Adelaide, Australia, 5005; ehunt@maths.adelaide.edu.au .

Assistant Editors

J. P. DENIER and Y. STOKES
Department of Applied Mathematics
The University of Adelaide, Australia, 5005.

A. GILL
Land Operations Division, DSTO
PO Box 1500, Salisbury, SA 5108.

Cover design by HILARY BOOTH.

https://doi.org/10.1017/S1446181100013006 Published online by Cambridge University Press

ISSN 0334-2700

THE ANZIAM JOURNAL

Volume 43 Part 2
OCTOBER 2001

Topological duality in humanoid robot dynamics
V. Ivancevic and C. E. M. Pearce 183

Wave motion in a conducting fluid with a layer adjacent to the boundary, II. Eigenfunction expansions
William V. Smith 195

A simple model for oilspill containment
Shaun R. Belward and Lawrence K. Forbes 237

Global stability and persistence in diffusive food chains
Yang Kuang 247

Stability of the solutions of impulsive functional-differential equations by Lyapunov's direct method
D. D. Bainov and I. M. Stamova 269

Multigrid methods for the biharmonic equation using some nonconforming plate elements
Liming Ma and Qianshun Chang 279

Solvability of some Abel-type integral equations involving the Gauss hypergeometric function as kernels in the spaces of summable functions
R. K. Raina, H. M. Srivastava, A. A. Kilbas and M. Saigo 291

Set by TeχAdel, Adelaide, Australia.
Printed by Instant Colour Press, Canberra, Australia.

https://doi.org/10.1017/S1446181100013006 Published online by Cambridge University Press

The Journal of the Australian Mathematical Society began publication in 1959, and from 1975 appeared in two series, Series A (Pure Mathematics and Statistics) and Series B (Applied Mathematics). Series B is now The ANZIAM Journal and is published in volumes comprising four quarterly parts. There is also a fifth (electronic) part designed for rapid publication (http://jamsb.austms.org.au/). Editor: A. J. ROBERTS, Department of Mathematics & Computing, University of Southern Queensland, Toowoomba, QLD 4350; aroberts@usq.edu.au. All five parts are refereed. All accepted papers have the option of publication in the electronic part. Information about Series A and other publications of the Society may be found on the inside back cover.

It is the editorial policy of The ANZIAM Journal to consider 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.

Manuscripts (three copies) for publication should be sent to the editor or to an appropriate associate editor at the address given on the inside front cover. 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. Please do not make initial submissions electronically.

Authors are asked to read the section "Preparation of Manuscripts" on the last page.

Irrespective of the number of authors, 50 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.

The ANZIAM Journal (ISSN 0334-2700) is published quarterly for A$280.50 (Members A$42.90) per annum by the Australian Mathematical Society, Mathematics Department, Australian National University, ACT 0200, Australia. Send address change notices to Dr A. Howe, Journal of the Australian Mathematical Society, Mathematics Department, Australian National University, ACT 0200, Australia.

https://doi.org/10.1017/S1446181100013006 Published online by Cambridge University Press