## BULLETIN

## of the

## AUSTRALIAN MATHEMATICAL SOCIETY

Volume 35 Number 3

Bifurcating attractors and Galerkin approximates
by R. Wells and J. A. Dutton ..... 321
Extreme positive linear maps between Jordan Banach algebras
by Cho-Ho Chu and Nigel P. H. Jefferies ..... 349
On projective resolution of identity on the duals of Banach spaces by M. Fabian ..... 363
The minimal faithful degree of a fundamental inverse semigroup
by D. Easdown ..... 373
On essential extensions of rings ..... 379
by E. R. Puczylowski
387
On certain inequalities for some regular functions defined on the unit disc
by Ming-Po Chen and Ih-Ren Lan
Semigroups of composition operators in Bergman spaces by Aristomenis G. Siskakis ..... 397
Lattice coverings and the diagonal group
by G. Ramharter ..... 407
Asymptotic equivalence of ordinary and operator-differential equations by P. S. Simeonov and D. D. Bainov ..... 415
Homomorphisms of distributive p-algebras with countably many minimal prime ideals by M. E. Adams, V. Koubek and J. Sichler ..... 427
On the area of planar convex sets containing many lattice points by P. R. Scott ..... 441
Extensions of continuous functions: reflective functors
by W. N. Hunsaker and S. A. Naimpally ..... 455
A note on the space $\mathbf{H p}$, a of holomorphic functions
by H. O. Kim. S. M. Kim and E. G. Kwon ..... 471

# BULLETIN OF THE AUSTRALIAN MATHEMATICAL SOCIETY 

Editors: Sheila Oates-Williams Honorary Editor:

Deputy Editor: A. S. Jones
B. H. Neumann

Associate Editors

| Robert S. Anderssen | P. Donovan | D. C. Hunt | Ross Street |
| :--- | :--- | :--- | :--- |
| Alan L. Andrew | B. J. Gardner | B. D. Jones | G. Szekeres |
| E. J. Billington J. R. Giles P. E. Kloeden D. G. Tacon <br> B. D. Craven J. R. J. Groves G. B. Preston E. U. Tarafdar <br> Brian A. Davey J. A. Hempel J. H. Rubinstein Colin J. Thompson <br> Peter G. Dodds D. A. Holton Leon Simon A. J. van der Poorten <br>  N. C. Weber   <br>  Assistant Editors   |  |  |  |
|  | K. G. Smith | G. A. Chandler |  |

## INFORMATION FOR AUTHORS

The BULLETIN of the Australian Mathematical Society aims at quick publication of original research in all branches of mathematics. Timely expository articles are also welcomed.

To ensure speedy publication, editorial decisions on acceptance or otherwise are taken quickly, normally within a month of receipt of the paper. Papers are accepted only after a careful evaluation by the Editor and an Associate Editor or other expert in the field.

As even minor revisions are generally not permitted, authors shouid read carefulily all the details listed below and on the inside back cover.

For a paper to be acceptable for publication, not only should it contain new and interesting results but also
(i) the exposition should be clear and attractive, and
(ii) the manuscript should be in publishable form, without revision. Nevertheless some meritorious papers will have to be rejected because speed of publication involves space limitations.

Authors should submit THREE clean, high quality copies to
The Editor, Bulletin of the Australian Mathematical Society.
Department of Mathematics, University of Queensland.
St. Lucia, Queensland, 4067, Australia but should not send the original typescript of their papers, as material submitted to the BULLETIN will usually not be returned. Authors should note that each paper submitted must include an abstract and one or more classification numbers following the 1980 Mathematics Subject Classification. (1985 Revision).

## Abstracts of PhD Theses

The BULLETIN endeavours to publish abstracts of all accepted Australasian PhD theses in mathematics. One restriction, however, is that the abstract must be received by the Editor within 6 months of the degree being approved.

[^0]
## BULLETIN

## of the

## Australian Mathematical Society

Editor: Sheila Oates-Williams<br>Deputy Editor: A. S. Jones<br>Honorary Editor: B. H. Neumann

Associate Editors
Robert S. Anderssen P. Donovan D. C. Hunt Ross Street
Alan L. Andrew B. J. Gardner
B. D. Jones
G. Szekeres
E. J. Billington
B. J. Gardne
B. D. Jones
D. G. Tacon
B. D. Craven
J. R. J. Groves
P. E. Kloeden
E. U. Tarafdar

Brian A. Davey
J. A. Hempel
G. B. Preston

Colin J. Thompson
Peter G. Dodds
D. A. Holton
J. H. Rubinstein
A. J. van der Poorten
N. C. Weber

Assistant Editors

K. G. Smith<br>G. A. Chandler

## VOLUME 35 (1987)

## Contents

M. E. Adams, V. Koubek and J. Sichler, Homomorphisms of distributive p-algebras with countably many minimal prime ideals ..... 427
Abdul Aziz, Growth of polynomials whose zeros are within or outside a circle ..... 247
D. D. Bainov, see P. S. Simeonov
Gerald Beer, Metric spaces with nice closed balls and distance functions for closed sets ..... 81
Altha Blanchet, see Henry Heatherly
Igor Bray, The gravitational lens effect of galaxies and black holes [A] ..... 317
Bang-Yen Chen and Paolo Piccinni, Submanifolds with finite type Gauss map. ..... 161
Ming-Po Chen and Ih-Ren Lan, On certain inequalities for some regular functions defined on the unit disc ..... 387
Shaozhu Chen, Asymptotic linearity of solutions of nonlinear differential equations ..... 257
Cho-Ho Chu and Nigel P. H. Jefferies, Extreme positive linear maps between Jordan Banach algebras ..... 349
John Cossey, Finite soluble groups have large centralisers ..... 291
A. G. Das see S. De Sarkar
S. De Sarkar and A. G. Das, Riemann derivatives and general integrals ..... 187
Phil Diamond, Nonlinear integral operators and chaos in Banach spaces. ..... 275
S. J. Dilworth, Isometric results on a measure of non-compactness for operators on Banach spaces ..... 27
J. A. Dutton see R. Wells
A. G. Earnest, Exponents of the class groups of imaginary Abelian number fields ..... 231
D. EASDOWN, The minimal faithful degree of a fundamental inverse semigroup ..... 373
M. Fabian, On projective resolution of identity on the duals of Banach spaces ..... 363
Henry Heatherly and Altha Blanchet, N-th root rings ..... 111
W. N. Hunsaker and Naimpally, Extensions of continuous functions: reflective functors ..... 455
Nigel P. H. Jefferies, see Cho-Ho Chu
Gary R. Jensen, Marco Rigoli and Kichoon Yang, Holomorphic curves in the complex quadric ..... 125
V. Jeyakumar, Nondifferentiable programming and duality with modified convexity [A] ..... 309
Bernard John Kachoyan, Stability in finite containers [A]. ..... 319
H. S. KASANA, Existence theorem for proximate type of entire functions with index-pair (p,q). ..... 35
H. O. Kim, S. M. Kim and E. G. Kwon, A note on the space $\mathrm{H}^{\mathrm{p}, \mathrm{a}}$ of holomorphic functions. ..... 471
S. M. Kım, see H. O. Kim
V. Koubek, see M. E. Adams
E. G. Kwon, see H. O. Kım
Ih-Ren Lan, see Ming-Po Chen
Martin W. Liebeck, Cheryl E. Praeger and Jan Saxl, Distance transitive graphs with symmetric or alternate automorphism group ..... 1
William Mclean, Boundary integral methods for the Laplace equation [A] ..... 155
Raymond Mortinl, Closed and prime ideals in the algebra of bounded analytic functions ..... 213
Baliganahalli Raja Iyengar Nagaraj, Micro-local analysis of operators with non-involutive characteristics [A] ..... 149
S. A. Naimpally, see W. N. Hunsaker
Paolo Piccinni, see Bang-Yen Chen
Renfrey B. Potts, Weierstrass elliptic difference equations ..... 43
Cheryl E. Praeger, see Martin W. Liebeck
E. R. Puczyy owski, On essential extensions of rings ..... 379
G. Ramharter, Lattice coverings and the diagonal group ..... 407
M. Rigoli, see Gary R. Jensen
Jan Saxl, see Martin W. Liebeck
P. R. Scott, On the area of planar convex sets containing many lattice points ..... 441J. Sichler see M. E. Adams
P. S. Simeonov and D. D. Bainov, Asymptotic equivalence of ordinary and operator-differential equations ..... 415
Aristomenis G. Siskakis, Semigroups of composition operators in Bergman spaces ..... 397
Alicia Sterna-Karwat, A note on convex cones in topological vector spaces ..... 97
Choon Peng Tan, Lower bounds for tau coefficients and operator norms using composite matrix norms. ..... 49
V. Tharmaratnam, Regular topological distributively generated near-rings ..... 59
V. Tharmaratnam, Division of distributively generated near-rings II ..... 73
Neil S. Trudinger, On degenerate fully nonlinear elliptic equations in balls ..... 299
F. Viera, The generation of water waves by travelling pressure disturbances [A] ..... 315
R. Wells and J. A. Dutton, Bifurcating attractors and Galerkin approximates. ..... 321
J. H. M. Whitfield and V. Zizler, Mazur's intersection property of balls for compact convex sets. . ..... 267
Geoffrey P. Whittle, Some aspects of the critical problem for matroids [A] ..... 153
David Charles Wilson, Structure and existence of Sidon sets on compact groups [A]. ..... 159
Kichoon Yang, see Gary R. Jensen
V. Zizler, see J. H. M. Whitfield
*[A] Abstract of Ph.D. thesis


[^0]:    Copyright Statement. Where necessary, permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by the Treasurer. Australian Mathematical Publishing Association, Inc., for libraries and other uses registered with the Copyright Clearance Center (CCC). provided that the base fee of \$A2.00 per copy of article is paid directly to CCC. 21 Congress Street. Salem, MA 01970, U S.A. Special requests should be addressed to the Treasurer. Australian Mathematical Publishing Association, Inc., c/-Department of Mathematics, University of Queensland. St. Lucia, Qld., 4067. Australia. Serial-fee code 0004-9727/87\$A2.00 + 0.00

