

# BULLETIN

ISSN 0004-9727

of the

## AUSTRALIAN MATHEMATICAL SOCIETY

Volume 23 Number 3

June 1981

Nonlinear hydromagnetic convection in a moderate Prandtl number fluid by N. Riahi .....	321
Varieties of groups and of completely simple semigroups by Mario Petrich and Norman R. Reilly .....	339
A criterion for the Hall-closure of Fitting classes by Owen J. Brison .....	361
Tolerance relations on lattices by Hans-J. Bandelt .....	367
Some neutral equations with a control parameter by Vasil G. Angelov .....	383
Degree of approximation of a function by Nörlund means of its Fourier series by R. B. Saxena .....	395
Uniformization of quasi-uniform spaces by T. G. Raghavan and I. L. Reilly .....	413
Some degeneracy and pathology in non-associative radical theory II by B. J. Gardner .....	423
Dissipative operators and series inequalities by Herbert A. Gindler and Jerome A. Goldstein .....	429
Viscous motion in an oceanic circulation model by A. F. Bennett and P. E. Kloeden .....	443
Not quite inner automorphisms by B. H. Neumann .....	461
A note on $d$ -symmetric operators by B. C. Gupta and P. B. Ramanujan .....	471
On some Gelfand-Mazur like theorems in Banach algebras; On some Gelfand-Mazur like theorems in $p$ -normed algebras: Corrigenda by V. K. Srinivasan .....	479

### ABSTRACT OF AUSTRALASIAN PhD THESIS

Module structure in certain algebras by Michael G. Schooneveldt .....	477
--	-----

## BULLETIN OF THE AUSTRALIAN MATHEMATICAL SOCIETY

Editor: Sidney A. Morris

Deputy Editor: K. R. Pearson

Honorary Editor: B. H. Neumann

### Associate Editors

Robert S. Anderssen

D. A. Holton

Leon Simon

Alan L. Andrew

D. C. Hunt

G. Szekeres

B. D. Craven

P. E. Kloeden

D. G. Tacon

Brian A. Davey

J. S. Maritz

Colin J. Thompson

G. E. Davis

Rodney Nillsen

H. B. Thompson

J. R. J. Groves

A. J. van der Poorten

R. F. C. Walters

James M. Hill

J. H. Rubinstein

### Assistant Editors

Robert S. Anderssen

M. S. Brooks

### 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 being evaluated by the Editor and an Associate Editor or another expert. Of course responsibility for the correctness of results published in the BULLETIN remains with the authors.

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 Pure Mathematics,

La Trobe University,

Bundoora, Victoria 3083, Australia

and should retain the original typescript of their papers, as material submitted to the BULLETIN will usually not be returned. Authors should note that each paper must include an abstract of not more than 200 words.

Details of editorial policy are given on the inside back cover.

### 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 3 months of the degree being approved.

### © Copyright by Australian Mathematical Society 1981.

Copyright. Apart from any fair dealing for scholarly purposes as permitted under the Copyright Act, no part of this BULLETIN may be reproduced by any process without written permission from the Treasurer of the Australian Mathematical Society.

ISSN 0004-9727

# BULLETIN

of the

## Australian Mathematical Society

Editor: Sidney A. Morris

Deputy Editor: K. R. Pearson

Honorary Editor: B. H. Neumann

### **Associate Editors**

Robert S. Anderssen

D. A. Holton

Leon Simon

Alan L. Andrew

D. C. Hunt

G. Szekeres

B. D. Craven

P. E. Kloeden

D. G. Tacon

Brian A. Davey

J. S. Maritz

Colin J. Thompson

G. E. Davis

Rodney Nillsen

H. B. Thompson

J. R. J. Groves

A. J. van der Poorten

R. F. C. Walters

James M. Hill

J. H. Rubinstein

### **Assistant Editors**

Robert S. Anderssen

M. S. Brooks

VOLUME 23 (1981)

The University of Queensland Press  
St Lucia, Queensland, 4067, Australia

**Printed by Watson Ferguson & Co., Brisbane, Queensland 4101, Australia**

# Contents

HAZAR ABU-KHUZAM, On rings with nil commutator ideal .. . . . .	307
VASIL G. ANGELOV, Some neutral equations with a control parameter .. . . . .	383
HANS-J. BANDELT, Tolerance relations on lattices .. . . . .	367
JOHN A. BEACHY, Weak ideal invariance and orders in Artinian rings .. . . . .	255
A. F. BENNETT and P. E. KLOEDEN, Viscous motion in an oceanic circulation model .. . . . .	443
WALTER R. BLOOM, Factorisation of Lipschitz functions on zero dimensional groups .. . . . .	215
ROLF BRANDL, A covering property of finite groups .. . . . .	227
OWEN J. BRISON, On a criterion for the Hall-closure of Fitting classes .. . . . .	361
DAVID BURNS, GARY CHARTRAND, S. F. KAPOOR and FARROKH SABA, Randomly $k$ -axial graphs .. . . . .	143
GARY CHARTRAND, <i>see</i> DAVID BURNS	
M. L. CHAUDHRY, <i>see</i> D. F. HOLMAN	
WILLIAM H. CORNISH, Trees as commutative BCK-algebras .. . . . .	181
DAVID E. DAYKIN and ROLAND HÄGGKVIST, Degrees giving independent edges in a hypergraph .. . . . .	103
P. G. DIXON, Automatic continuity of positive functionals on topological involution algebras .. . . . .	265
B. J. GARDNER, Some degeneracy and pathology in non-associative radical theory II .. . . . .	423
D. B. GAULD, I. L. REILLY and M. K. VAMANAMURTHY, On normal subspaces .. . . . .	1
A. GHOSAL, <i>see</i> D. F. HOLMAN	
HERBERT A. GINDLER and JEROME A. GOLDSTEIN, Dissipative operators and series inequalities .. . . . .	429
JEROME A. GOLDSTEIN, <i>see</i> HERBERT A. GINDLER	
S. J. GOODENOUGH and T. M. MILLS, On interpolation polynomials of the Hermite-Fejér type II .. . . . .	283
B. C. GUPTA and P. B. RAMANUJAN, A note on $d$ -symmetric operators .. . . . .	471
ROLAND HÄGGKVIST, <i>see</i> DAVID E. DAYKIN	
GRAHAME HARDY, Extensions of theorems of Gagliardo and Marcus and Mizel to Orlicz spaces .. . . . .	121
ALAN HARTMAN, Construction and resolution of quadruple systems [A] .. . . . .	319
D. F. HOLMAN, M. L. CHAUDHRY and A. GHOSAL, Some results for the general bulk service queueing system .. . . . .	161
N. L. JOHNSON, Some translation planes constructed by multiple derivation .. . . . .	313
S. F. KAPOOR, <i>see</i> DAVID BURNS	
STEFANO KASANGIAN and FABIO ROSSI, Some remarks on symmetry for a monoidal category .. . . . .	209
P. E. KLOEDEN, <i>see</i> A. F. BENNETT	
I. G. MACDONALD, Numbers of conjugacy classes in some finite classical groups .. . . . .	23
MIHAEL MEGAN and PETRE PREDA, On exponential dichotomy in Banach spaces .. . . . .	293
T. M. MILLS, <i>see</i> S. J. GOODENOUGH	
S. P. MOHANTY, <i>see</i> S. K. SHUKLA	
P. P. NARAYANASWAMI, <i>see</i> STEPHEN A. SAXON	
B. H. NEUMANN, Another single law for groups .. . . . .	81
B. H. NEUMANN, Not quite inner automorphisms .. . . . .	461
MARIO PETRICH and NORMAN R. REILLY, Varieties of groups and of completely simple semigroups .. . . . .	339
JOHN POLAND, Finite potent groups .. . . . .	111
PETRE PREDA, <i>see</i> MIHAEL MEGAN	
JOSHUA H. RABINOWITZ, Positivity notions for holomorphic line bundles over compact Riemann surfaces .. . . . .	5
T. G. RAGHAVAN and I. L. REILLY, Uniformization of quasi-uniform spaces .. . . . .	413
V. RAGHAVENDRA, A remark on an integral inequality .. . . . .	195
P. B. RAMANUJAN, <i>see</i> B. C. GUPTA	
JOHN M. S. RASSIAS, Weak and semi-strong solutions of the Schneider-Tricomi problem in the Euclidean space; A uniqueness theorem for the Chaplygin-Frankl problem: Corrigenda .. . . . .	159
I. L. REILLY, <i>see</i> D. B. GAULD	
I. L. REILLY, <i>see</i> T. G. RAGHAVAN	

## Contents

NORMAN R. REILLY, <i>see</i> MARIO PETRICH	
N. RIAHI, Nonlinear hydromagnetic convection in a moderate Prandtl number fluid .. . . . .	321
FABO ROSSI, <i>see</i> STEFANO KASANGIAN	
FARROKH SABA, <i>see</i> DAVID BURNS	
R. B. SAXENA, Degree of approximation of a function by Nörlund means of its Fourier series .. . . . .	395
STEPHEN A. SAXON and P. P. NARAYANASWAMI, Metrizable (LF)-spaces, (db)-spaces, and the separable quotient problems .. . . . .	65
MICHAEL G. SCHOOENEVELDT, Module structure in certain algebras [A] .. . . . .	477
S. D. SHARMA, <i>see</i> R. K. SINGH	
S. K. SHUKLA, M. R. SRIDHARAN and S. P. MOHANTY, Stability of strongly regular graphs .. . . . .	139
R. K. SINGH and S. D. SHARMA, Composition operators and several complex variables .. . . . .	237
C. J. SMYTH, On measures of polynomials in several variables .. . . . .	49
D. SOMASUNDARAM, On a theorem of Brudno over non-archimedean fields .. . . . .	191
M. R. SRIDHARAN, <i>see</i> S. K. SHUKLA	
V. K. SRINIVASAN, On some Gelfand-Mazur like theorems in Banach algebras: On some Gelfand-Mazur like theorems in $p$ -normed algebras: Corrigenda .. . . . .	479
GEORGE STAMOU, Characterizations of the sphere by the mean II-curvature .. . . . .	249
ROSS STREET, Notions of topos .. . . . .	199
D. J. SUTTON, Some problems in teletraffic with particular emphasis on limited availability networks [A] .. . . . .	317
M. K. VAMANAMURTHY, <i>see</i> D. B. GAULD	
YURIKO YAMAMURO, Water waves above a sill [A] .. . . . .	157