BULLETIN ISSN 0004-9727

of the

AUSTRALIAN MATHEMATICAL SOCIETY

Volume 29 Number 3

June 1984

Universally incomparable ring-homomorph	isms									
by David E. Dobbs and Marco I		na .			а (я				a: a:	289
Algebras generated by symmetric idempote										
by David Choate						a 54		a a		303
Automorphism groups of orthomodular latt	tices									
by Gudrun Kalmbach		a a.			a a	a a	a) a	a .	a 60 - 5	309
A density problem for Hardy spaces of alm										
by Robyn Owens							ani se	e s	e 12	315
Univalent functions with univalent Gelfond	-Leont	ev deri	vatives	s						
by O. P. Juneja and S. M. Shah								an A		329
Generalization of Leader's fixed point prin										
by Tanmoy Som and R. N. Mul	kherjee	6 a	e an	a 12	n (1	2) is	an a	a) 7	4.61	349
An integral characterization of Euclidean s										
by J. M. Borwein		a ao		x 3		a) a	ок: 13		* *	357
Monadic representability of certain binary										
by I. L. Humberstone									e	365
Oscillations in linear systems of differentia	l-differ	ence e	quation	ns						
by K. Gopalsamy					a a	a 3		24 () 1	22	377
Graphs with Eulerian chains										
by Roger B. Eggleton and Dona	ld K.	Skiltor	í	a a	a a	6 2 (6	1.00	a i	100	389
Free products of locally indicable groups w										
by Benjamin Baumslag					a	ж п	ce: i		1.0	401
Decompositions of graphs of modules over	semisi	mple ri	ngs							
by Grace Orzech										405
Cardinality of discrete subsets of a topolog	ical sp	ace: C	orriger	ndum						
by David B. Gauld and M. K. V	/aman	amurth	1y .	a 11	van - va		ar -	270 270	n 14	431
ABSTRACTS OF AUSTRALASIAN Ph	D THI	ESES								
Epimorphisms and semigroup varieties										
by Peter M. Higgins	• •	× *		e - a				1.(±)		415
Recursive properties of isomorphism types										
by Michael Moses.				a 6	68 B		(i)		÷ r	419
Composite graphs with stability index one										
by K. L. McAvaney		. a		a. 8	is is	(4) A		ene:	$\hat{\mathbf{x}}(\hat{\mathbf{x}})$	423
Biordered sets of semigroups										
by David Easdown			•	ю						425
Mathematical modelling of rate-limiting m	echani	isms of	pyritic	c oxid	ation in	1 overb	ourden	dumps	s	
by Gregory Bruce Davis										429

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

Registered by Australia Post—Publication No. QBQ2945 https://doi.org/10.1017/S0004972700021511 Published online by Cambridge University Press

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 B. J. Gardner Alan L. Andrew B. D. Craven Brian A. Davey P. Donovan J. A. Eccleston

J. R. Giles J. R. J. Groves J. A. Hempel D. A. Holton D. C. Hunt

P. E. Kloeden	Ross Street
Rodney Nillsen	G. Szekeres
Sheila Oates-Williams	D. G. Tacon
A. J. van der Poorten	Colin J. Thompson
J. H. Rubinstein	H. B. Thompson
Leon Simon	Rudolf Výborný

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 guickly, 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

Dr S. Oates-Williams.

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.

As even minor revisions are generally not permitted, authors should read carefully all the details listed 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 6 months of the degree being approved.

C 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: 0004-9727/84 sA2.00 + 0.00

ISSN 0004-9727 BULLETIN of the

Australian Mathematical Society

Deputy Editor: K. R. Pearson Honorary Editor: B. H. Neumann

Editor: Sidney A. Morris

Associate Editors

Robert S. Anderssen Alan L. Andrew B. D. Craven Brian A. Davev P. Donovan J. A. Eccleston

B. J. Gardner J. R. Giles J. R. J. Groves J. A. Hempel D. A. Holton D. C. Hunt

P. E. Kloeden **Ross Street** Rodney Nillsen G. Szekeres Sheila Oates-Williams D. G. Tacon A. J. van der Poorten Colin J. Thompson J. H. Rubinstein H. B. Thompson Leon Simon Rudolf Výborný

Assistant Editors

Robert S. Anderssen

M. S. Brooks

VOLUME 29 (1984)

The University of Queensland Press St Lucia, Queensland, 4067, Australia Printed by Watson Ferguson & Co., Brisbane, Queensland 4101, Australia

BULL. AUSTRAL. MATH. SOC. VOL. 29 (1984), 1-432

Contents

				• •
VITO ABATANGELO, A translation plane of order 81 and its full collineation group	••	••	••	19
BENJAMIN BAUMSLAG, Free products of locally indicable groups with a single relator	••	• •	••	401
J. A. BELWARD, Existence of solutions of Oseen type integral equations	••	••	••	57
A. J. BERRICK and R. G. DOWNEY, Perfect McLain groups are superperfect	••	••	••	249
J. M. BORWEIN, An integral characterization of Euclidean space	••	••	••	357
DAVID B. CHOATE, The density of subsequences	••	••	••	145
DAVID CHOATE, Algebras generated by symmetric idempotents	••	••	•••	303
GREGORY BRUCE DAVIS, Mathematical modelling of rate-limiting mechanisms of pyr				100
overburden dumps [A]	••	••	••	429
SATYA DEO and DALIP SINGH JAMWAL, Countable sum theorem for locally closed set			••	47
M. PAUL DEVASAHAYAM, Monotone method and periodic solution of non linear para	ipojic		•	
value problem for systems	••	••	••	231
DAVID E. DOBBS and MARCO FONTANA, Universally incomparable ring-homomorphi	sms	••	••	289
R. G. DOWNEY, see A. J. BERRICK				
DAVID EASDOWN, Biordered sets of semigroups [A]	••	••	• •	425
ROGER B. EGGLETON and DONALD K. SKILTON, Graphs with Eulerian chains	••	••	••	389
P. C. FENTON, Small subharmonic functions	••	••	••	67
MARCO FONTANA, see DAVID E. DOBBS				
DAVID B. GAULD and M. K. VAMANAMURTHY, Cardinality of discrete subsets of a to	polog	ical spa	ace:	
Corrigendum	••	••	••	431
K. GOPALSAMY, Oscillations in linear systems of differential-difference equations .	••	••	••	377
PETER M. HIGGINS, Epimorphisms and semigroup varieties [A]	••	••	••	415
JONATHAN A. HILLMAN, Polynomials determining Dedekind domains	••	••	••	167
I. L. HUMBERSTONE, Monadic representability of certain binary relations	••	••	••	365
BRAD JACKSON and GERHARD RINGEL, Coloring island maps	••	••	••	151
DALIP SINGH JAMWAL, see SATYA DEO				
O. P. JUNEJA and S. M. SHAH, Univalent functions with univalent Gelfond-Leontev of	leriva	tives	••	329
GUDRUN KALMBACH, Automorphism groups of orthomodular lattices	••	• •	••	309
	••	• •	••	137
THOMAS KIVENTIDIS, Systèmes dynamiques dans les espaces ultramétriques compacts	••	• •	••	207
THOMAS KIVENTIDIS, Comparaison resultats pour la stabilité pratique		••		243
J. H. LOXTON, A method of Mahler in transcendence theory and some of its applicat	ions			127
KURT MAHLER, Some suggestions for further research		• •		101
J. J. MALONE, p-groups with non-abelian automorphism groups and all automorphis	ms ce	ntral	• •	35
R. M. M. MATTHEU, The stability of LU-decompositions of block tridiagonal matric	es.	• •		177
K. L. MCAVANEY, Composite graphs with stability index one [A]	••			423
W. D. MCCUAIG and M. ROSENFELD, Cyclability of r-regular r-connected graphs			••	1
HANS-CHRISTIAN MEZ, HNN-extensions of algebras and applications				215
M. L. MOGRA, Analytic mappings with negative coefficients in the unit disc				83
MICHAEL MOSES, Recursive properties of isomorphism types [A]				419
R. N. MUKHERJEE, see TANMOY SOM				
GRACE ORZECH, Decompositions of graphs of modules over semisimple rings	••			405
ROBYN OWENS, A density problem for Hardy spaces of almost periodic functions				315
A. J. VAN DER POORTEN, p-adic methods in the study of Taylor coefficients of rationa	l func	tions	••	109
Govind Prasad, see Ashok Sahai				
M. RAMA MOHANA RAO and P. SRINIVAS, Stability of functional differential equations	of Vo	lterra t	ype	93
GERHARD RINGEL, see BRAD JACKSON			-	
M. ROSENFELD, see W. D. MCCUAIG				
ASHOK SAHAI and GOVIND PRASAD, Sharp estimates of approximation by some	posi	tive lin	lear	
operators			••	13
-				

Contents

S. M. Shah, see O. P. Juneja				
DONALD K. SKILTON, see ROGER B. EGGLETON				
TANMOY SOM and R. N. MUKHERJEE, Generalization of Leader's fixed point principle	:			349
T. P. SPEED, On the Möbius function of Hom(P,Q)				39
P. Srinivas, see M. Rama Mohana Rao				
CEZARY S. SURMA, Discrete Green's functions and random resistive networks [A]	••			139
G. SZEKERES, The <i>n</i> -dimensional approximation constant				119
VIDAR THOMÉE, The finite difference versus the finite element method for the solution of	bound	dary va	alue	
problems				267
LESLIE IAN TRUDZIK, Optimization in abstract spaces [A]				141
M. K. VAMANAMURTHY, see DAVID B. GAULD				
V. ZIZLER, Locally uniformly rotund renorming and decompositions of Banach space	es.			259

[A] Abstract of Australasian PhD thesis.

iv