BULLETIN Volume 18 (1978)

of the Australian Mathematical Society

Number 3

S. G. Pandit	On Stieltjes-Volterra integral equations	321
R. Frič and D. C. Kent	On the natural completion functor for Cauchy	
	spaces	335
K. Aderogba and	Action of a force near the planar surface between	
J. R. Blake	two semi-infinite immiscible liquids at very	
	low Reynolds numbers	345
B. J. Day and	On embedding closed categories	357
M. L. Laplaza		
J. B. Wilker	Generalized symmetry	373
Yuichi Kitamura and	An oscillation theorem for a superlinear func-	
Takaŝi Kusano	tional differential equation with general deviat-	
	ing arguments	395
P. R. Scott	A new extension of Minkowski's Theorem	403
A. M. Russell	Further results on an integral representation of	
	functions of generalised variation	407
M. F. Hutchinson	Tall profinite groups	421
Ralph Fox and Ivan L. Reilly	Topological spaces and Abian structures	429
R. K. Singh and	Composition operators	439
B. S. Komal		
Douglas M. Campbell	The Bloch-Nevanlinna conjecture revisited	447
and Gene H. Wickes		
V. Sree Hari Rao	Note on asymptotic equivalence for measure differential equations	455
Ivan Singer	On the distance of non-reflexive spaces to the	
	collection of all conjugate spaces	461
Cheryl E. Praeger	On doubly transitive permutation groups	465
B J Day	Duality in topological algebra	475

Bull. Austral. Math. Soc.

Vol. 18 (1978) No. 3, pp. 321-480

THE UNIVERSITY OF QUEENSLAND PRESS ST LUCIA, QUEENSLAND 4067

THE AUSTRALIAN MATHEMATICAL SOCIETY

President: J. M. Gani Division of Mathematics and Statistics, CSIRO.

Secretary: D. G. Hurley Department of Mathematics,
University of Western Australia,

University of Western Australia Nedlands, WA 6009, Australia

Treasurer: V. G. Hart Department of Mathematics,

University of Queensland

St Lucia, Queensland 4067, Australia.

(These officers serve until May 1979)

Membership and correspondence

Applications for membership, notices of change of address or title or position, and other correspondence, except as noted below, should be sent to the Secretary (address above). Subscriptions and correspondence related to accounts should be sent to the Treasurer (address above). Correspondence about the distribution of the Society's JOURNAL, BULLETIN, and GAZETTE, and orders for back numbers, should be sent to the Business Manager, whose address is the same as the Treasurer's (above).

Publications

The JOURNAL of the Australian Mathematical Society began publication in 1959, and since 1975 has appeared in two series, Series A (Pure Mathematics) and Series B (Applied Mathematics). The Editors.are:

(A) Professor J. B. Miller,
Department of Mathematics,

Monash University, Clayton, Victoria 3168, Australia. (B) Professor I. N. Sloan, School of Mathematics, University of New South Wales, Kensington, NSW 2033, Australia.

The BULLETIN of the Australian Mathematical Society began publication in 1969. Two volumes of three numbers each are published annually. Manuscripts for publication should be sent to the Editor:

Dr B. H. Neumann,
Department of Mathematics,
Institute of Advanced Studies,
Australian National University,
POB 4, Canberra, ACT 2600, Australia,

or to the Associate Editor, Dr L. G. Kovács, at the same address.

The Australian Mathematical Society GAZETTE started publication in 1974, and carries news items, mathematical articles of general interest, and articles on tertiary mathematics teaching. Manuscripts for publication should be sent to the Editor at the

School of Mathematics, University of New South Wales, Kensington, NSW 2033, Australia.

© Copyright by Australian Mathematical Society 1978

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.

(Continued inside back cover)

ISSN 0004-9727

BULLETIN

of the

Australian Mathematical Society

edited by

B. H. Neumann L. G. Kovacs M. S. Brooks

VOLUME 18 (1978)

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



Contents

K. ADEROGBA and J. R. BLAKE, Action of a force near the planar surface between two semi-infini
immiscible liquids at very low Reynolds numbers
ROBERT J. ADLER, A martingale central limit theorem without negligibility conditions
R. J. ADLER and D. J. Scott, Martingale central limit theorems without uniform asymptotic
negligibility: Corrigendum
TIM ANDERSON and B. J. GARDNER, Semi-simple classes in a variety satisfying an Andrunakievich
Lemma
LEIF ARKERYD, A counter-example to a conjecture by Deakin
GEORGE BACHMAN and ALAN SULTAN, Measure theoretic techniques in topology and mappings of
replete and measure replete spaces
W. BARIT and G. R. Wood, Differentiable retracts and a modified inverse function theorem.
R. K. Beatson, Degree of approximation theorems for approximation with side conditions [A]* 29
J. R. Blake, see K. Aderogba
Francis Borceux and B. J. Day, On characterisation of finitary algebraic categories
G. J. BUTLER and G. PIANIGIANI, Periodic points and chaotic functions in the unit interval 2.
DOUGLAS M. CAMPBELL and GENE H. WICKES, The Bloch-Nevanlinna conjecture revisited
B. D. Craven, A generalization of Lagrange multipliers: Corrigendum
Noel Cressie, Estimation of the integral of a stochastic process
E. N. Dancer, Asymptotics applied to nonlinear boundary-value problems
B. J. Day, Duality in topological algebra
B. J. DAY and M. L. LAPLAZA, On embedding closed categories
B. J. Day, see also Francis Borceux
Anthony Haynes Dooley, Some techniques of harmonic analysis of compact Lie groups with
applications to lacunarity [A]
Peter Eades, On the existence of orthogonal designs [A]
M. J. Field, Resolving actions of compact Lie groups
S. P. FITZPATRICK, Monotone operators and dentability
RALPH Fox and Ivan L. Reilly, Topological spaces and Abian structures
R. Frič and D. C. Kent, On the natural completion functor for Cauchy spaces
B. J. GARDNER, see TIM ANDERSON
J. R. GILES, D. A. GREGORY, and Brailey Sims, Characterisation of normed linear spaces with
Mazur's intersection property
C. D. Godsil and B. D. McKay, A new graph product and its spectrum
D. A. GREGORY, see J. R. Giles
A W. C. THE D. T. LEWIS CO. C.
A. K. GUPTA and U. B. IEWARI, Multipliers between some function spaces on groups D. K. GUPTA, see R. K. Singh
,
φ
MICHAEL FRANK HUTCHINSON, Lacunary sets for connected and totally disconnected compact groups [A].
Proghe [1.1]
The state of the s
DAVID R. JACKETT, Some topics in the theory of ring structures on abelian groups [A] 1
T. R. Jefferson, see C. H. Scott
D. C. Kent, see R. Frič
YUICHI KITAMURA and TAKASI KUSANO, An oscillation theorem for a superlinear functional

iv Contents

B. S. Komal, see R. K. Singh				
Takaŝi Kusano, see Yuichi Kitamura				
S. N. LAL and A. K. SINGH, An analogue of Banach's contraction principle for 2-n	netric:	spaces		137
M. Laplaza, see B. J. Day				
LE VAN TU, On multifunctions and multimeasures [A]				145
ELIZABETH A. S. Loci, Tight Riesz orders via congruences [A]				153
B. D. McKay, see C. D. Godsil				
Mamoru Narita, Oscillation theorems for semilinear hyperbolic and unitrahyperb	olic o	perato	rs .	55
TRUONG CÔNG NGHÊ, Differentiable manifolds modelled on locally convex spaces	[A]			303
S. G. PANDIT, On Stieltjes-Volterra integral equations				321
J. PARIDA and B. SAHOO, A note on generalised linear complementarity problems				161
M. J. Pelling and D. G. Rogers, Stein quasigroups I: Combinatorial aspects.				221
G. Pianigiani, see G. J. Butler				
HANS-E. PORST, Characterizations of MacNeille completions and topological functions	ors			201
CHERYL E. PRAEGER, On doubly transitive permutation groups				465
. BREE TIME TELES, OIL COMMENDED OF IMPURITING PERSONS				237
V. Sree Hart Rao, Note on asymptotic equivalence for measure differential equation	ons			455
Ivan L. Reilly, see Ralph Fox				
D. G. Rogers, see M. J. Pelling				
A. M. Russell, Further results on an integral representation of functions of generation	alised	variati	on.	407
B. Sahoo, see J. Parida				
C. H. Scott and T. R. Jefferson, Duality in finite dimensional complex space.				6:
D. J. Scott, see R. J. Adler				
P. R. Scott, A new extension of Minkoski's Theorem				403
Brailey Sims, see J. R. Giles				
IVAN SINGER, On the distance of non-reflexive spaces to the collection of all conjug	ate sp	aces		46
A. K. SINGH, see S. N. LAL				
R. K. SINGH and D. K. GUPTA, Normal and invertible composition operators.				4:
R. K. SINGH and B. S. KOMAL, Composition operators				439
GEOFFREY HOWARD SMITH, Analytic extension of riemannian manifolds [A]				14
Alan Sultan, see George Bachman				
U. B. Tewari, see A. K. Gupta				
W. J. WALKER, The enumeration and bifurcations of ranking functions				28
IAN ARTHUR WHITE, Radiation losses in dielectric optical waveguides [A]				30
GENE H. WICKES, see DOUGLAS M. CAMPBELL				
J. B. WILKER, Generalized symmetry				37.
WILLIAM H. WILSON, A functorial version of a construction of Hochschild a	nd M	ostow	for	
representations of Lie algebras				9:
WILLIAM H. WILSON, On coinduced corepresentations				99
G. R. WOOD, See W. BARIT				

^{*[}A] denotes Abstract of PhD thesis.