## AUTHOR INDEX FOR VOLUME 94

AHMADI, K. and SAZEEDEH, R.; Hereditary torsion theories of a locally noetherian Grothendieck category ..... 421
ALAVI, S. H., DANESHKHAH, A. and JAFARI, A.; Groups with the same character degrees as sporadic almost simple groups ..... 254
ALHARBI, A. O. M.; The biological treatment of wastewater: mathematical models ..... 347
ALLAHYARI, R., ARAB, R. and HAGHIGHI, A. S.; Measures of noncompactness in a Sobolev space and integro-differential equations ..... 497
ANDRUSZKIEWICZ, R. R. and WORONOWICZ, M.; A torsion-free abelian group exists whose quotient group modulo the square subgroup is not a nil- group ..... 449
ARAB, R.; see ALLAHYARI, R. ..... 497
BAČA, M., MILLER, M., RYAN, J. and SEMANIČOVÁ-FEŇOVČÍKOVÁ, A.; On $H$-antimagicness of disconnected graphs ..... 201
BAILES, J. S.; Orbispaces, configurations and quasi-fibrations ..... 342
BARMAN, R., RAHMAN, H. and SAIKIA, N.; Counting points on Dwork hypersurfaces and $p$-adic hypergeometric functions ..... 208
BAXTER, L. H., LYONS, J. W. and NEUGEBAUER, J. T.; Differentiating solutions of a boundary value problem on a time scale ..... 101
BELTRÁN, A., FELIPE, M. J. and MELCHOR, C.; Normal subgroups whose conjugacy class graph has diameter three ..... 266
BLIZNAC, M. and FILIPIN, A.; An upper bound for the number of Diophantine quintuples ..... 384
BOURNE, C.; Topological states of matter and noncommutative geometry ..... 349
BOURQUI, D. and SEBAG, J.; Deformations of differential arcs ..... 405
BUCKLEY, M.; Three studies in higher category theory: fibrations, skew- monoidal structures and excision of extremals ..... 337
CAIRNS, G., MENDAN, S. and NIKOLAYEVSKY, Y.; A sufficient condition for a pair of sequences to be bipartite graphic ..... 195
CAVENAGH, N. J. and WANLESS, I. M.; There are asymptotically the same number of Latin squares of each parity ..... 187
CHEN, T.; see LIU, F. ..... 121
CHEN, Y., HU, X., LUO, Y. and SAPIR, O.; The finite basis problem for the monoid of two-by-two upper triangular tropical matrices ..... 54
CHOI, Y.; Triviality of the generalised Lau product associated to a Banach algebra homomorphism ..... 286
CHUNG, J.; General stability of the exponential and Lobačevskiǐ functional equations ..... 278
DANESHKHAH, A.; see ALAVI, S. H. ..... 254
DE ANDRADE, A. F. and SHUMYATSKY, P.; Bounding the order of the nilpotent residual of a finite group ..... 273
DE LUCA, A. V. and DI GRAZIA, G.; Groups of infinite rank with normality conditions on subgroups with small normal closure ..... 48
DI GRAZIA, G.; see DE LUCA, A. V. ..... 48
DICKINSON, J.; Development of a process model for the prediction of absorbent degradation during $\mathrm{CO}_{2}$ capture ..... 339
DISSANAYAKE, G. S.; Advancement of fractionally differenced Gegenbauer processes with long memory ..... 173
DONG, X. D. A.; Bayesian analysis of reserving models and applications ..... 343
DU, X.; see LIU, R. ..... 362
EBRAHIMI VISHKI, H. R.; see FAAL, R. ..... 296
ELSHOLTZ, C.; Almost all primes have a multiple of small Hamming weight ..... 224
FAAL, R. and EBRAHIMI VISHKI, H. R.; More on the Arens regularity of $B(X)$ ..... 296
FELIPE, M. J.; see BELTRÁN, A. ..... 266
FILIPIN, A.; see BLIZNAC, M. ..... 384
GABRIYELYAN, S. S. and MORRIS, S. A.; An open mapping theorem ..... 65
GONZÁLEZ, A. and LÓPEZ-LÓPEZ, J. L.; Compactness of spaces of convex and simple quadrilaterals ..... 507
HAGHIGHI, A. S.; see ALLAHYARI, R. ..... 497
HAJDU, L., LAISHRAM, S. and SZIKSZAI, M.; Perfect powers in products of terms of elliptic divisibility sequences ..... 395
HARE, K. E. and HE, J.; Smoothness of convolution products of orbital measures on rank one compact symmetric spaces ..... 131
HE, J.; see HARE, K. E. ..... 131
HEYMAN, R.; Topics in divisibility: pairwise coprimality, the gcd of shifted sets and polynomial irreducibility ..... 167
HIRANO, M., KATATA, K. and YAMASAKI, Y.; Ramanujan Cayley graphs of Frobenius groups ..... 373
HORBACZEWSKA, G. and LINDNER, S.; Resolvability of measurable spaces ..... 70
HU, X.; see CHEN, Y. ..... 54
HUANG, Z. H.; see PAN, J. M. ..... 20
HUH, J. and LIM, E.; Refinements of the first and second positive crank moments ..... 236
JAFARI, A.; see ALAVI, S. H. ..... 254
JALEEL, A. A.; Constructing free resolutions of cohomology algebras ..... 341
JIA, H.; see LIU, R. ..... 362
JONES, P. R.; A note on the Howson property in inverse semigroups ..... 457
KALA, V.; Universal quadratic forms and elements of small norm in real quadratic fields ..... 7
KATATA, K.; see HIRANO, M. ..... 373
LAISHRAM, S.; see HAJDU, L. ..... 395
LI, C., YI, X. and QIAO, S.; A note on the p-supersolubility of finite groups ..... 431
LIM, E.; see HUH, J. ..... 236
LIN, L. and ZHANG, Y.; The strong irreducibility of a class of Cowen-Douglas operators on Banach spaces ..... 479
LINDNER, S.; see HORBACZEWSKA, G. ..... 70
LIU, F., CHEN, T. and WU, H.; A note on the endpoint regularity of the Hardy- Littlewood maximal functions ..... 121
LIU, R., DU, X. and JIA, H.; Wiener index on traceable and Hamiltonian graphs ..... 362
LIU, Y.; see LIU, Y. J. ..... 30
LIU, Y. J. and LIU, Y.; A character-theoretic criterion for the solvability of finite groups ..... 30
LÓPEZ-LÓPEZ, J. L.; see GONZÁLEZ, A. ..... 507
LUO, Y.; see CHEN, Y. ..... 54
LYONS, J. W.; see BAXTER, L. H. ..... 101
MA, S.-M. and WANG, H.-N.; Enumeration of a dual set of Stirling permutations by their alternating runs ..... 177
MAGALINGAM, P.; Complex network tools to enable identification of a criminal community ..... 350
MARQUES, D. and RAMIREZ, J.; On exceptional sets: the solution of a problem posed by K. Mahler ..... 15
MELCHOR, C.; see BELTRÁN, A. ..... 266
MENDAN, S.; see CAIRNS, G. ..... 195
MICHALSKA, M. and MICHALSKI, A. M.; A generalisation of the Clunie- Sheil-Small theorem ..... 92
MICHALSKI, A. M.; see MICHALSKA, M. ..... 92
MILLER, M.; see BAČA, M. ..... 201
MOLNÁR, L.; The logarithmic function and trace zero elements in finite von Neumann factors ..... 290
MORRIS, S. A.; see GABRIYELYAN, S. S. ..... 65
NAHEED, A.; A study of spatio-temporal spread of infectious disease: SARS ..... 522
NEUGEBAUER, J. T.; see BAXTER, L. H. ..... 101
NIEMEYER, A. C. and POPIEL, T.; Finding involutions with small support ..... 43
NIKOLAYEVSKY, Y.; see CAIRNS, G. ..... 195
OMIDVAR, M. E.; see SHAH HOSSEINI, M. ..... 489
PAN, J. M., HUANG, Z. H. and PENG, S. Q.; On arc-regular Frobenius metacirculants ..... 20
PENG, S. Q.; see PAN, J. ..... 20
POPIEL, T.; see NIEMEYER, A. C. ..... 43
PRIYADARSHI, A.; Continuity of the Hausdorff dimension for graph-directed systems ..... 471
QIAO, S.; see LI, C. ..... 431
RAHMAN, H.; see BARMAN, R. ..... 208
RAJAN, P. and WILHELM, F.; Almost nonnegative curvature on some fake 6- and 14-dimensional projective spaces ..... 304
RAMIREZ, J.; see MARQUES, D. ..... 15
RAO, G.; Self-complementary vertex-transitive graphs ..... 165
REPOVŠ, D. and VESNIN, A.; On Gehring-Martin-Tan groups with an elliptic generator ..... 326
RODTES, K.; Symmetry classes of tensors associated to nonabelian groups of order $p q$ ..... 36
ROSE, M. G.; Expectations over deterministic fractal sets ..... 171
RYAN, J.; see BAČA, M. ..... 201
SAIKIA, N.; see BARMAN, R. ..... 208
SAPIR, O.; see CHEN, Y. ..... 54
SARIZADEH, A.; A new example of a deterministic chaos game ..... 464
SAZEEDEH, R.; see AHMADI, K. ..... 421
SEBAG, J.; see BOURQUI, D. ..... 405
SEMANIČOVÁ-FEŇOVČÍKOVÁ, A.; see BAČA, M. ..... 201
SHAH HOSSEINI, M. and OMIDVAR, M. E.; Some inequalities for the numerical radius for Hilbert space operators ..... 489
SHUMYATSKY, P.; see DE ANDRADE, A. F. ..... 273
STANFORD, T. E.; Statistical analysis of proteomic mass spectrometry data for the identification of biomarkers and disease diagnosis ..... 345
STYLOGIANNIS, G.; Semigroups of composition operators on local Dirichlet spaces ..... 144
SUN, N. K.; The quenching of solutions of a reaction-diffusion equation with free boundaries ..... 110
SZIKSZAI, M.; see HAJDU, L. ..... 395
TAM, M. K.; Iterative projection and reflection methods: theory and practice ..... 175
TANG, M.; A unique representation bi-basis for the integers. II ..... 1
THABET, F.; On the existence of finite critical trajectories in a family of quadratic differentials ..... 80
VANDEHEY, J.; Absolutely abnormal and continued fraction normal numbers ..... 217
VESNIN, A.; see REPOVŠ, D. ..... 326
WANG, H.-N.; see MA, S.-M. ..... 177
WANLESS, I. M.; see CAVENAGH, N. J. ..... 187
WHITE, G. A.; Algorithms for Galois group computations over multivariate function fields ..... 169
WILHELM, F.; see RAJAN, P. ..... 304
WORONOWICZ, M.; see ANDRUSZKIEWICZ, R. R. ..... 449
WU, H.; see LIU, F. ..... 121
XIA, Q.; On the first eigencone for the Finsler Laplacian ..... 316
YAMASAKI, Y.; see HIRANO, M. ..... 373
YANG, Y. L. and ZHANG, D. Y.; The Green-Osher inequality in relative geometry ..... 155
YI, X.; see LI, C. ..... 431
YU, H.; On weakly $S$-permutably embedded subgroups of finite groups ..... 437
ZAÏMI, T.; On real parts of powers of complex Pisot numbers ..... 245
ZENG, M. and ZHOU, G.; A modified FR conjugate gradient method for computing $Z$-eigenpairs of symmetric tensors ..... 411
ZHANG, D. and ZHAO, H.; The dimension of centralisers of matrices of order $n$ ..... 353
ZHANG, D. Y.; see YANG, Y. ..... 155
ZHANG, Y.; see LIN, L. ..... 479
ZHAO, H.; see ZHANG, D. ..... 353
ZHOU, G.; see ZENG, M. ..... 411

## InFORMATION FOR AUTHORS

The Bulletin of the Australian Mathematical Society aims at quick publication of original research in all branches of mathematics. To ensure speedy publication, only articles which are sufficiently well presented, able to be published without revision, and which are judged by the Editor (often in consultation with an Associate Editor) to be competitive are refereed. This policy is in the interests of authors, as a quick rejection is better than a slow rejection. The Bulletin receives more than five times the material that can be published, therefore there are many commendable papers not accepted. Editorial decisions on acceptance or otherwise are taken quickly, normally within a month of receipt of the paper. Papers are accepted only after peer review.

Manuscripts are accepted for review with the understanding that the same work is not concurrently submitted elsewhere. 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.

Further information regarding these requirements may be found through our website www.austms.org.au/Bulletin. Authors are asked to avoid, as far as possible, the use of mathematical symbols in the title.

Articles should be prepared in $\mathrm{ET}_{\mathrm{E}} \mathrm{X}$ using $\mathcal{A}_{\mathcal{M}} \mathcal{S}$-ETT E X packages and submitted as a PDF file via our journal management system, at www.austms.org.au/Publications/Submissions/BAustMS. This permits authors to track their papers through the editorial process. Recent versions of $\mathrm{T}_{\mathrm{E}} \mathrm{X}$ are able to produce PDF files directly. A IATEX class file for the Bulletin can be downloaded from the website. Authors who need assistance may email the secretary of the Bulletin at editor@bulletin.austms.org.au.

Authors are advised to keep copies of all files of the submitted article; the Bulletin will not accept responsibility for any loss.

## Editorial Policy

1. References. Arrange references alphabetically (by surname of the first author) and cite them numerically in the text. Ensure the accuracy of the references: authors' names should appear as in the work quoted. Include in the list of references only those works cited, and avoid citing works which are in preparation or submitted. Where the work cited is not readily accessible (for example, a preprint) a copy of the article should be included with your submission.

## 2. Abstracts.

1. Each paper must include an abstract of not more than 150 words, which should contain a brief but informative summary of the contents of the paper, but no inessential details.
2. The abstract should be self-contained, but may refer to the title.
3. Specific references (by number) to a section, proposition, equation or bibliographical item should be avoided.
4. Subject Classification and Key Words. Authors should include a few key words and phrases and one or more classification numbers, following the American Mathematical Society 2010 Mathematics Subject Classification for all codes. Details of this scheme can be found on the web at www.ams.org $/ \mathrm{msc}$.
5. 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 six months of the degree being approved.

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organisation established to promote the responsible management of the world's forests. Please see www.fsc.org for information.

## Table of Contents

The dimension of centralisers of matrices of order $\boldsymbol{n}$ Zhang, D. \&i Zhao, $H$. ..... 353
Wiener index on traceable and Hamiltonian graphs Liu, R., Du, X. © Fia, H. ..... 362
Ramanujan Cayley graphs of Frobenius groups
Hirano, M., Katata, K. © Yamasaki, 1. ..... 373
An upper bound for the number of Diophantine quintuples
Bliznac, M. © Filipin, A. ..... 384
Perfect powers in products of terms of elliptic divisibility sequences
Hajdu, L., Laishram, S. Æ Szikszai, M. ..... 395
Deformations of differential arcs Bourqui, D. © Sebag, 7 . ..... 405
A modified FR conjugate gradient method for computing Z-eigenpairs of symmetric tensors Zeng, M. © ¿hou, $G$. ..... 411
Hereditary torsion theories of a locally noetherian Grothendieck category Ahmadi, K. © Sazeedeh, R. ..... 421
A note on the $\boldsymbol{p}$-supersolubility of finite groups Li, C., 1i, X. \& Qiao, S. ..... 431
On weakly $S$-permutably embedded subgroups of finite groups ru, $H$. ..... 437
A torsion-free abelian group exists whose quotient group modulo the square subgroup is not a nil-group
Andruszkiewicz, R. R. © Woronowicz, M. ..... 449
A note on the Howson property in inverse semigroups Jones, P. R. ..... 457
A new example of a deterministic chaos game
Sarizadeh, $A$. ..... 464
Continuity of the Hausdorff dimension for graph-directed systems Priyadarshi, $A$. ..... 471
The strong irreducibility of a class of Cowen-Douglas operators on Banach spaces
Lin, L. © Zhang, Y. ..... 479
Some inequalities for the numerical radius for Hilbert space operators
Shah Hosseini, M. © Omidvar, M. E. ..... 489
Measures of noncompactness in a Sobolev space and integro-differential equations
Allahyari, R., Arab, R. © Haghighi, A. S. ..... 497
Compactness of spaces of convex and simple quadrilaterals
González, A. © López-López, 7. L. ..... 507
Abstracts of PhD Theses
A study of spatio-temporal spread of infectious disease: SARS Naheed, $A$. ..... 522
Author Index for Volume 94 ..... 524

