Glasgow
Mathematical Journal

Volume 36 Part 3 September 1994

OXFORD UNIVERSITY PRESS

## GLASGOW MATHEMATICAL JOURNAL

## Editorial Board

R. J. Steiner Editor-in-Chief

| I. Anderson | W. D. Munn | W. W. Stothers |
| :--- | :--- | :--- |
| A. J. Baker | R. W. K. Odoni | M. J. Tomkinson |
| S. D. Cohen | R. W. Ogden | J. R. L. Webb |
| H. R. Dowson | P. F. Smith | D. B. Webber |

The Glasgow Mathematical Journal is the continuation of the Proceedings of the Glasgow Mathematical Association. It was founded in 1952 by the late Professor T. M. MacRobert and published with the support of the University Court of the University of Glasgow. The present name was adopted in 1967 and since 1987 the Journal has been owned by the Glasgow Mathematical Journal Trust, an independent charitable trust.

Frequency. The Glasgow Mathematical Journal publishes three issues each year (in January, May and September) forming a volume of approximately 380 pages.

Subscriptions. The subscription rates for 1994 are: $£ 63$ in the U.K. and Europe, and US $\$ 122$ in the rest of the world.

These prices include air-speeded delivery to Australia, Canada, India, Japan, New Zealand and the U.S.A. Delivery elsewhere is by surface post, although airmail rates can be quoted on request.

Payment is required with all orders and may be made by the following methods:
Cheque (made payable to Oxford University Press)
National Girobank (account 500 1056)
Credit card (Access, Visa, American Express, Diners Club)
UNESCO Coupons
Bankers: Barclays Bank plc, PO Box 333, Oxford, U.K. Code 20-65-18, Account 00715654.
Requests for sample copies, subscription enquiries, orders and changes of address should be sent to the Journals Subscription Department, Oxford University Press, Walton Street, Oxford OX2 6DP, U.K.

Back numbers. Copies of the current volume and the two immediately preceding volumes can be obtained from Oxford University Press at the above address. Earlier volumes can be obtained from William Dawson and Sons, Cannon House, Park Farm Road, Folkestone, Kent CT19 5EE, U.K.

Submission of papers. Information for authors is to be found on the inside back cover.

## GLASGOW MATHEMATICAL JOURNAL

VOLUME 36

# Glasgow Mathematical Journal 

## Volume 361994

OXFORD UNIVERSITY PRESS

## GLASGOW MATHEMATICAL JOURNAL

Editorial Board
R. J. Steiner Editor-in-Chief

| I. Anderson | W. D. Munn | W. W. Stothers |
| :--- | :--- | :--- |
| A. J. Baker | R. W. K. Odoni | M. J. Tomkinson |
| S. D. Cohen | R. W. Ogden | J. R. L. Webb |
| H. R. Dowson | P. F. Smith | D. B. Webber |

ISSN 00170895
Published by Oxford University Press, Walton Street, Oxford OX2 6DP, U.K.
Typeset, printed and bound in Northern Ireland by The Universities Press (Belfast) Ltd. (C) Glasgow Mathematical Journal Trust 1994.

## CONTENTS

Argiin, Ziya and Rowlands, K., On the Arens semi-regularity of weighted group algebras ..... 269
Arregi, J. M., See Vera-López, A. and Arregi, J. M. ..... 91
Assem, Ibrahim and Coelho, Flávio Ulhoa, Complete slices and homologi- cal properties of tilted algebras ..... 347
Bacon, Michael R., On the non-abelian tensor square of a nilpotent group of class two ..... 291
Ballester-Bolinches, A. and Pérez-Ramos, M. D., On $\mathfrak{F}$-subnormal sub- groups and Frattini-like subgroups of a finite group ..... 241
Benjamin, E., Sanborn, F. and Snyder, C., Capitulation in unramified quadratic extensions of real quadratic number fields ..... 385
Blyth, T. S., Giraldes, Emilia and Marques-Smith, M. Paula O., Associate subgroups of orthodox semigroups ..... 163
Bryce, R. A. and Rylands, L. J., A note on groups with non-central norm ..... 37
Bujalance, E., Costa, A. F., Gromadzki, G. and Singerman D., Automorphism groups of complex doubles of Klein surfaces ..... 313
Burns, J. M., Goldsmith, B., Hartley, B. and Sandling, R., On quasi- permutation representations of finite groups ..... 301
Campbell, C. M., Conder, M. D. E. and Robertson, E. F., Defining- relations for Hurwitz groups ..... 363
Carter, Sheila and Ezentas, Ridvan, Embeddings of nonorientable surfaces with totally reducible focal set ..... 11
Castillo, Jesús M. F. and Sánchez, Fernando, Remarks on the range of a vector measure ..... 157
Castillo, Jesús M. F. and González, Manuel, Properties ( $V$ ) and ( $u$ ) are not three-space properties ..... 297
Chen, Bang-yen, Classification of tensor product immersions which are of 1-type ..... 255
Cheung, Leung-Fu and Leung, Pui-Fai, Some results on stable p-harmonic maps ..... 77
Chõ, Muneo, Spectral properties of $p$-hyponormal operators ..... 117
Coelho, Flávio Ulhoa, See Assem, Ibrahim and Coelho, Flávio Ulhoa ..... 347
Cohn, J. H. E., On the Diophantine equation $z^{2}=x^{4}+D x^{2} y^{2}+y^{4}$ ..... 283
Conder, M. D. E., See Campbell, C. M., Conder, M. D. E. and Robertson, E. F. ..... 363
Corson, Jon Michael, Limits of covering spaces and residual properties of groups ..... 277
Costa, A. F., See Bujalance, E., Costa, A. F., Gromadzki, G. and Singerman D. ..... 313
Defever, Filip, Deszez, Ryszard and Verstraelen, Leopold, The Chen-type of the noncompact cyclides of Dupin ..... 71
Deszcz, Ryszard, See Defever, Filip, Deszcz, Ryszard and Verstraelen, Leopold ..... 71
Dineen, Seán, Galindo, Pablo, García, Domingo and Maestre, Manuel, Linearization of holomorphic mappings on fully nuclear spaces with a basis ..... 201
Doust, Ian, A weaker condition for normality ..... 249
Drewnowski, Lech, Florencio, Miguel and Paúl, Pedro J., Barrelled subspaces of spaces with subseries decompositions or Boolean rings of projections ..... 57
Ezentas, Ridvan, See Carter, Sheila and Ezentas, Ridvan ..... 11
Florencio, Miguel, See Drewnowski, Lech, Florencio, Miguel and Paúl, Pedro J. ..... 57
Galindo, Pablo, See Dineen, Seán, Galindo, Pablo, García, Domingo and Maestre, Manuel ..... 201
Garba, G. U., On the nilpotent ranks of certain semigroups of transformations ..... 1
García, Domingo, See Dineen, Seán, Galindo, Pablo, García, Domingo and Maestre, Manuel ..... 201
Giraldes, Emília, See Blyth, T. S., Giraldes, Emília and Marques-Smith, M. Paula O. ..... 163
Goldsmith, B., See Burns, J. M., Goldsmith, B., Hartley, B. and Sandling, R. ..... 301
González, Manuel, See Castillo, Jesús M. F. and González, Manuel ..... 297
Gromadzki, G., See Bujalance, E., Costa, A. F., Gromadzki, G. and Singerman D. ..... 313
Harlander, Jens, Minimal Cockcroft subgroups ..... 87
Hartley, B., See Burns, J. M., Goldsmith, B., Hartley, B. and Sandling, R. ..... 301
Heineken, Hermann, Fitting classes of certain metanilpotent groups ..... 185
Hidalgo, Rubén A., Schottky uniformizations of closed Riemann surfaces with Abelian groups of conformal automorphisms ..... 17
Humphries, Stephen P., On reducible braids and composite braids ..... 197
Huxley, M. N., On stationary phase integrals ..... 355
Itoh, Shigeharu, On the vanishing viscosity in the Cauchy problem for the equations of a nonhomogeneous incompressible fluid ..... 123
Johnson, E. W., Almost-Dedekind rings ..... 131
Jones, Gareth A., Symmetries of surfaces: an extension of Kulkarni's theorem ..... 173
Lagrange, Jean and Leech, John, Pythagorean ratios in arithmetic progression, Part II. Four Pythagorean ratios ..... 45
Laursen, Kjeld B. and Neumann, Michael M., Local spectral theory and spectral inclusions ..... 331
Lawson, M. V., Almost factorisable inverse semigroups ..... 97
Leech, John, See Lagrange, Jean and Leech, John ..... 45
Leung, Pui-Fai, See Cheung, Leung-Fu and Leung, Pui-Fai ..... 77
McGibbon, C. A., Wilson spaces and stable splittings of $B T^{r}$ ..... 287
MacKenzie, Kenneth W., Polycyclic group rings and unique factorisation rings ..... 135
Maestre, Manuel, See Dineen, Seán, Galindo, Pablo, García, Domingo and Maestre, Manuel ..... 201
Marques-Smith, M. Paula O., See Blyth, T. S., Giraldes, Emília and Marques-Smith, M. Paula O. ..... 163
May, Coy L., Finite metacyclic groups acting on bordered surfaces ..... 233
Muhly, Paul S. and Na, Qiyuan, Extension of completely bounded $A-B$ bimodule maps ..... 145
Na, Qiyuan, See Muhly, Paul S. and Na, Qiyuan ..... 145
Neumann, Michael M., See Laursen, Kjeld B. and Neumann, Michael M. ..... 331
Pan, Yibiao, On dilation equations and the Hölder continuity of the de Rham functions ..... 309
Pastijn, Francis and Yan, Xiaoying, Semigroup varieties closed for the Bruck extension ..... 371
Paúl, Pedro J., See Drewnowski, Lech, Florencio, Miguel and Paúl, Pedro J. ..... 57
Pérez-Ramos, M. D., See Ballester-Bolinches, A. and Pérez-Ramos, M. D. ..... 241
Petrich, Mario, The kernel and trace operators for ideal extensions of regular semigroups ..... 219
Robertson, E. F., See Campbell, C. M., Conder, M. D. E. and Robertson, E. F. ..... 363
Rowlands, K., See Argün, Ziya and Rowlands, K. ..... 269
Runde, Volker, The structure of discontinuous homomorphisms from non-commutative $\mathrm{C}^{*}$-algebras ..... 209
Rylands, L. J., See Bryce, R. A. and Rylands, L. J. ..... 37
Sanborn, F., See Benjamin, E., Sanborn, F. and Snyder, C. ..... 385
Sánchez, Fernando, See Castillo, Jesús M. F. and Sánchez, Fernando ..... 157
Sandling, R., See Burns, J. M., Goldsmith, B., Hartley, B. and Sandling, R. ..... 301
Singerman D., See Bujalance, E., Costa, A. F., Gromadzki, G. and Singerman D. ..... 313
Smith, Howard, A note on locally soluble, normal closures of cyclic subgroups ..... 33
Smith, Howard, On the normal cores of certain subgroups of nilpotent groups ..... 113
Snyder, C., See Benjamin, E., Sanborn, F. and Snyder, C. ..... 385
Srinivasan, S., On an arithmetical inequality ..... 81
Takeuchi, Tsutomu, Coranks of a quasi-projective module and its en- domorphism ring ..... 381
Vera-López, A. and Arregi, J. M., Conjugacy classes in Sylow p-subgroups of $\operatorname{GL}(n, q)$, IV ..... 91
Verstraelen, Leopold, See Defever, Filip, Deszcz, Ryszard and Verstraelen, Leopold ..... 71
Voloshin, V., A note on the chromatic polynomial ..... 265
Yan, Xiaoying, See Pastijn, Francis and Yan, Xiaoying ..... 371
Zayed, Maher, Pure-semisimplicity is preserved under elementary equivalence ..... 345

