# Glasgow Mathematical Journal

Volume 57 Part 1 January 2015



# Glasgow Mathematical Journal

EDITOR-IN-CHIEF:	Professor I. A. B. Strachan, School of Mathematics and Statistics, University of Glasgow
SUBJECT EDITORS: Algebra Algebra Algebra Algebraic Geometry	Dr J. Grabowski, Department of Mathematics & Statistics, Lancaster University Professor V. Mazorchuk, Department of Mathematics, University of Uppsala, Sweden Professor P.H. Kropholler, Department of Mathematics, University of Southampton Dr Gavin Brown, School of Mathematics, Loughborough University
Algebraic Topology Analysis	Dr. A. J. Baker, School of Mathematics & Statistics, University of Glasgow Dr M. Daws, Department of Pure Mathematics, University of Leeds
Analysis Analysis Differential Geometry Mathematical Physics Number Theory	<ul> <li>Dr V. Moroz, Department of Mathematics, University of Wales, Swansea</li> <li>Dr N. Bez, Department of Mathematics, Saitama University, Japan</li> <li>Professor R. Bielawski, Institut für Differentialgeometrie, Leibniz Universität, Hannover</li> <li>Dr. O. Chalykh, Department of Applied Mathematics, University of Leeds</li> <li>Dr T. Dokchitser, Department of Mathematics, University of Bristol</li> </ul>
·	

# **INTERNATIONAL EDITORS:**

Professor T. Bridgeland, School of Mathematics and Statistics, University of Sheffield, UK.

Professor W. G. Dwyer, Department of Mathematics, University of Notre Dame, USA

Professor M. A. Efendiev, Center of Mathematical Sciences, Technical University of Munich, Germany

Professor K. R. Goodearl, Department of Mathematics, University of California, USA

Professor B. J. Green, Department of Pure Mathematics and Mathematical Statistics, University of Cambridge, UK

Professor H. W. Lenstra, jr., Mathematisch Instituut, Universiteit Leiden, The Netherlands

Professor A. Lubotzky, Institute of Mathematics and Computer Science, The Hebrew University of Jerusalem, Israel

Professor L. E. Payne, Department of Mathematics, Cornell University, USA

Professor H. Pedersen, Department of Mathematics and Computer Science, University of Southern Denmark, Denmark

Professor T. Schlumprecht, Department of Mathematics, Texas A & M University, USA

BUSINESS MANAGER: Dr. C. Athorne

## SUBSCRIPTIONS

*Glasgow Mathematical Journal* (ISSN 0017–0895) is published in January, May and September. Three parts form a volume. The subscription price of volume 57 (2015) (which includes electronic access and postage) is £248 net (USA, Canada and Mexico US\$435). The electronic-only price available to institutional subscribers is £193 (US\$348 in the USA, Canada and Mexico). Single parts cost £86 (USA, Canada and Mexico US\$152) plus postage. Prices include delivery by air where appropriate.

Orders, which must be accompanied by payment, may be sent to any bookseller, subscription agent or direct to the publisher: Cambridge University Press, Journals Fulfillment Department, University Printing House, Shaftesbury Road, Cambridge CB2 8BS, UK; or in the USA, Canada and Mexico: Cambridge University Press, Journals Fulfillment Department, 100 Brook Hill Drive, West Nyack, New York 10994–2133. EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Japanese prices for institutions are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan. Application to mail at Periodicals Postage Rates is pending at New York, NY.

## COPYING

This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA (www.copyright.com). Organizations in the USA who are also registered with CCC may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to CCC. This consent does not extend to multiple copying for promotional or commercial purposes.

ISI Tear Sheet Service, 3501 Market Street, Philadelphia, PA 19104, USA, is authorized to supply single copies of separate articles for private use only.

Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions.

For all other use, permission should be sought from Cambridge University Press.

For further information on other Press titles access journals.cambridge.org.