

# MATHEMATICAL PROCEEDINGS

*(formerly Proceedings)*

*of the  
Cambridge Philosophical Society*

VOLUME 157



**CAMBRIDGE**  
UNIVERSITY PRESS

Published by the Press Syndicate of the University of Cambridge  
The Pitt Building, Trumpington Street, Cambridge CB2 1RP, United Kingdom

CAMBRIDGE UNIVERSITY PRESS

University Printing House, Shaftesbury Road, Cambridge CB2 8BS, United Kingdom  
32 Avenue of the Americas, New York, NY 10013–2473, USA  
477 Williamstown Road, Port Melbourne, VIC 3207, Australia  
C/Orense, 4, planta 13, 28020 Madrid, Spain  
Lower Ground Floor, Nautica Building, The Water Club, Beach Road,  
Granger Bay, Cape Town 8005, South Africa

© Cambridge Philosophical Society 2014

Printed in the United Kingdom by Bell and Bain Limited, Glasgow

# INDEX FOR VOLUME 157

	PAGE
<b>Allaart, P. C.</b> Hausdorff dimension of level sets of generalized Takagi functions . . . . .	253
<b>Ambrose, C.</b> Artin's primitive root conjecture and a problem of Rohrlich . . . . .	79
<b>Andrus, I., Hegedüs, P. &amp; Okuyama, T.</b> Transposable character tables and group duality . . . . .	31
<b>Baader, S.</b> The volume of positive braid links . . . . .	543
<b>Barnsley, M., Steiner, W. &amp; Vince, A.</b> Critical itineraries of maps with constant slope and one discontinuity . . . . .	547
<b>Bessa, M. &amp; Dias, J. L.</b> Hamiltonian suspension of perturbed Poincaré sections and an application . . . . .	101
<b>Boscaggin, A. &amp; Ortega, R.</b> Monotone twist maps and periodic solutions of systems of Duffing type . . . . .	279
<b>Brazitikos, S. &amp; Stavrakakis, P.</b> On the intersection of random rotations of a symmetric convex body . . . . .	13
<b>Bringmann, K., Mahlburg, K. &amp; Rhoades, R. C.</b> Taylor coefficients of mock-Jacobi forms and moments of partition statistics. . . . .	231
<b>Bureaux, J.</b> Partitions of large unbalanced bipartites . . . . .	469
<b>de Jong, R. &amp; Müller, J. S.</b> Canonical heights and division polynomials . . . . .	357
<b>Dodson, M. &amp; Everitt, B.</b> Metrical Diophantine approximation for quaternions . . . . .	513
<b>Dunajski, M. &amp; Kryński, W.</b> Einstein–Weyl geometry, dispersionless Hirota equation and Veronese webs . . . . .	139
<b>Fernandes, A., Maquera, C. &amp; Venato–Santos, J.</b> Jacobian Conjecture and semialgebraic maps . . . . .	221
<b>Girouard, A., Parnowski, L., Polterovich, I. &amp; Sher, D. A.</b> The Steklov spectrum of surfaces: asymptotics and invariants . . . . .	379
<b>Gudmundsson, S. &amp; Svensson, M.</b> Harmonic morphisms from homogeneous spaces of positive curvature . . . . .	321
<b>Henriot, K.</b> Nair–Tenenbaum uniform with respect to the discriminant - ERRATUM . . . . .	375
<b>Hirose, S. &amp; Sato, M.</b> A minimal generating set of the level 2 mapping class group of a non-orientable surface . . . . .	345
<b>Ito, T. &amp; Nakamura, I.</b> On surface links whose link groups are abelian . . . . .	63
<b>Katzman, M., Schwede, K., Singh A. K. &amp; Zhang, W.</b> Rings of Frobenius operators . . . . .	151
<b>Kim, I., Kim, J. &amp; Tan, S. P.</b> McShane's identity in rank one symmetric spaces . . . . .	113
<b>Lamplugh, J.</b> Triviality of the $\ell$ -class groups in $\mathbb{Z}_p$ -extensions of $\mathbb{Q}(\sqrt{-1})$ for split primes $p \equiv 1$ modulo 4 . . . . .	169
<b>Lee, D.–W.</b> On the generalized same $N$ -type conjecture . . . . .	329
<b>Lenstra, H. W., Stevenhagen, Jr. P. &amp; Moree, P.</b> Character sums for primitive root densities . . . . .	489
<b>Lester, S.</b> On the distribution of the zeros of the derivative of the Riemann zeta-function . . . . .	425
<b>Müller, P. F. X.</b> A decomposition for Hardy martingales II . . . . .	189
<b>Parzanchevski, O. &amp; Puder, D.</b> Stallings graphs, algebraic extensions and primitive elements in $F_2$ . . . . .	1
<b>Schäppi, D.</b> Ind-abelian categories and quasi-coherent sheaves . . . . .	391
<b>Spiga, P.</b> Semiregular elements in cubic vertex-transitive graphs and the restricted Burnside problem . . . . .	45
<b>Thorne, F.</b> Bubbles of Congruent Primes . . . . .	443
<b>Xu, J.</b> The third and fourth pluricanonical maps of threefolds of general type . . . . .	209
<b>Yalin, S.</b> Simplicial localisation of homotopy algebras over a prop . . . . .	457
<b>Yang, W. Y.</b> Growth tightness for groups with contracting elements . . . . .	297

# INSTRUCTIONS TO AUTHORS

## 1. Preparation of Manuscripts

A paper should be submitted electronically to [mpeditor@hermes.cam.ac.uk](mailto:mpeditor@hermes.cam.ac.uk) in pdf form only. Authors are encouraged to prepare their manuscripts in LaTeX 2e using the PSP class file. The class file, together with a guide, `PSP2egui.tex`, and sample pages, `PSP2esam.tex`, can be downloaded from <ftp://ftp.cambridge.org/pub/texarchive/journals/latex/pspscls> in either packed or unpacked form. These files will be updated periodically: please ensure that you have the latest version.

A cover page should give the title, the author's name and institution, with the address to which mail should be sent.

The title, while brief, must be informative (e.g. *A new proof of the prime-number theorem*, whereas, *Some applications of a theorem of G. H. Hardy* would be useless).

Authors are asked to provide an abstract as a basis for search on the Web. This may be an explicit abstract at the start of the paper. Otherwise the first paragraph or two should form a summary of the main theme of the paper, providing an abstract intelligible to mathematicians. Please note that the abstract should be able to be read independently of the main text. References should therefore not be included in the abstract.

Authors are encouraged to check that where references are given, they are used in the text. Experience has shown that unused references have a habit of surviving into the final version of the manuscript.

For a typescript to be accepted for publication, it must accord with the standard requirements of publishers, and be presented in a form in which the author's intentions regarding symbols etc. are clear to a printer (who is not a mathematician). Please also check the Cambridge University Press website for information about the style in which the paper should be submitted.

## 2. Notation

Notation should be chosen carefully so that mathematical operations are expressed with all possible neatness, to lighten the task of the compositor and to reduce the chance of error. For instance  $n$  sub  $k$  is common usage, but avoid if possible using  $c$  sub  $n$  sub  $k$ . Fractions are generally best expressed by a solidus. Complicated exponentials like:

$$\exp\{z^2 \sin \theta / (1 + y^2)\}$$

should be shown in this and no other way.

It helps if displayed equations or statements which will be quoted later are numbered in order on the right of their line. They can then be referred to by, for example 'from (7)'.

The author must enable the printer (if necessary by pencilled notes in the margin) to distinguish between similar symbols such as  $o$ ,  $O$ ,  $o$ ,  $O$ ,  $0$ ,  $0$ ;  $x$ ,  $X$ ,  $\times$ ;  $\phi$ ,  $\Phi$ ,  $\emptyset$ ;  $l$ ,  $l$ ;  $e$ ,  $k$ ,  $\kappa$ ,  $k$ .

Footnotes should be avoided.

Please use typewriter font for all addresses and email addresses.

Omit  $\square$  from the end of proofs.

In listing assertions, conclusions, etc. do not use a vertical column of dots and do not follow (a) or (i) by a capital letter (eg. (i) the absolute value . . .)

In making references precise use [3, theorem 5.1]

## 3. Diagrams

Diagrams should be in black ink or from a high-quality laser printer and should not be larger than 30 cm by 45 cm. Lettering to be inserted by the printer should be shown clearly on copies of the figures rather than on the original drawings. Please note that a charge may be made if hand-drawn diagrams need to be re-drawn for publication.

Figure 1 here

A typed list of captions may be provided at the end of the manuscript in the following format:

Figure 1. *A basis for . . .*

Note that there is no point at the end of the heading. All headings should be centred.

## 4. Tables

Tables should be numbered (above the table) and set out on separate sheets. Indicate the position of each in the text as for figures:

Table 3 here

Heading for tables should be shown in the following way:

Table 1. *A basis for . . .*

Note that there is no point at the end of the heading. All headings should be centred over columns.

## 5. References

References should be collected at the end of the paper numbered in alphabetical order of the authors' names. Where references are given, they should be used in the text. Titles of journals should be abbreviated as in *Mathematical Reviews*. The following examples show the preferred style for references to a paper in a journal, a paper in a proceedings volume, a book and an unpublished dissertation:

- [1] J. F. ADAMS. On the non-existence of elements of Hopf invariant one. *Ann of Math.* (2) **72** (1960), 20-104.
- [2] M. P. FOURAM and D. S. SCOTT. Sheaves and logic. In *Applications of Sheaves* Lecture Notes in Math. vol. 753 (Springer-Verlag, 1979), pp. 302-401.
- [3] P. T. JOHNSTONE. *Stone Spaces*. Cambridge Studies in Advanced Math. no. 3 (Cambridge University Press, 1982).
- [4] F. W. LAWVERE. Functional semantics of algebraic theories. Ph.D. thesis. Columbia University (1963).

## 6. Submission of papers accepted for publication

When a paper has been accepted for publication the relevant TeX files of the final version, accompanied by a pdf file, should be sent to the Editor by e-mail.

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

# MATHEMATICAL PROCEEDINGS

*of the  
Cambridge Philosophical Society*

VOLUME 157 PART 3, pages 379–565, November 2014

## CONTENTS

GIROUARD, A., PARNOVSKI, L., POLTEROVICH, I. & SHER, D. A. The Steklov spectrum of surfaces: asymptotics and invariants . . . . .	379
SCHÄPPI, D. Ind-abelian categories and quasi-coherent sheaves . . . . .	391
LESTER, S. On the distribution of the zeros of the derivative of the Riemann zeta-function . . . . .	425
THORNE, F. Bubbles of Congruent Primes . . . . .	443
YALIN, S. Simplicial localisation of homotopy algebras over a prop . . . . .	457
BUREAUX, J. Partitions of large unbalanced bipartites . . . . .	469
LENSTRA, H.W., JR., STEVENHAGEN, P. & MOREE, P. Character sums for primitive root densities . . . . .	489
DODSON, M. & EVERITT, B. Metrical Diophantine approximation for quaternions . . . . .	513
BAADER, S. The volume of positive braid links . . . . .	543
BARNESLEY, M., STEINER, W. & VINCE, A. Critical itineraries of maps with constant slope and one discontinuity . . . . .	547

©The Cambridge Philosophical Society 2014

Cambridge Journals Online

For further information about this journal  
please go to the journal website at:  
[journals.cambridge.org/psp](http://journals.cambridge.org/psp)



**MIX**  
Paper from  
responsible sources  
**FSC® C007785**

**CAMBRIDGE**  
UNIVERSITY PRESS