
VOLUME 152

NUMBER 2

WHOLE NUMBER 776

FEBRUARY 2024

PROCEEDINGS

OF THE

ISSN 0002-9939 (print)
ISSN 1088-6826 (online)

A M E R I C A N M A T H E M A T I C A L S O C I E T Y

EDITED BY

Ariel Barton

Julie Bergner

Dmitriy Bilyk

Harold P. Boas

Filippo Bracci

Amarjit Budhiraja

Zhen-Qing Chen

Tanya Christiansen

Stephen Dilworth

Vera Fischer

Amanda Folsom

David Futer,

Managing Editor

Katrin Gelfert

Shelly Harvey

Ryan Hynd

Mourad Ismail

Matthew Kennedy

Martin Liebeck

Ling Long

Javad Mashreghi

Isabella Novik

Benoit Pausader

Claudia Polini

Rachel Pries

David Savitt

Nageswari Shanmugalingam

Wenxian Shen

Gregory G. Smith

Genevieve S. Walsh

Chelsea Walton

Jiaping Wang

Lu Wang

Sarah Witherspoon

Yuan Xu

Gaoyong Zhang



AMERICAN
MATHEMATICAL
SOCIETY

Providence, Rhode Island USA

Proceedings of the American Mathematical Society

This journal is devoted entirely to research in pure and applied mathematics.

Submission information. See **Information for Authors** at the end of this issue.

Publication on the AMS website. Articles are published on the AMS website individually after proof is returned from authors and before appearing in an issue.

Subscription information. The *Proceedings of the American Mathematical Society* is published monthly and is also accessible electronically from www.ams.org/journals/. Individual subscription prices for Volume 152 (2024) are as follows. For electronic only: non-member US\$1688.00, member, US\$1350.40. For paper delivery: non-member, US\$1922.00, member, US\$1537.60. Add US\$10 for delivery within the United States; US\$60 for surface delivery outside the United States. Upon request, subscribers to paper delivery of this journal are also entitled to receive electronic delivery. For information on institutional pricing, please visit <https://www.ams.org/publications/journals/subscriberinfo>. Subscription renewals are subject to late fees. See www.ams.org/journal-faq for more journal subscription information.

Back number information. For back issues see www.ams.org/backvols.

Subscriptions and orders should be addressed to the American Mathematical Society, P.O. Box 845904, Boston, MA 02284-5904 USA. *All orders must be accompanied by payment.* Other correspondence should be addressed to 201 Charles Street, Providence, RI 02904-2213 USA.

Copying and reprinting. Individual readers of this publication, and nonprofit libraries acting for them, are permitted to make fair use of the material, such as to copy an article for use in teaching or research. Permission is granted to quote brief passages from this publication in reviews, provided the customary acknowledgment of the source is given.

Republication, systematic copying, or multiple reproduction of any material in this publication is permitted only under license from the American Mathematical Society. Requests for permission to reuse portions of AMS publication content are handled by the Copyright Clearance Center. For more information, please visit www.ams.org/publications/pubpermissions.

Excluded from these provisions is material for which the author holds copyright. In such cases, requests for permission to reuse or reprint material should be addressed directly to the author(s). Copyright ownership is indicated in the notice in the lower right-hand corner of the first page of each article.

Proceedings of the American Mathematical Society (ISSN 0002-9939 (print); ISSN 1088-6826 (online)) is published monthly by the American Mathematical Society at 201 Charles Street, Providence, RI 02904-2213 USA. Periodicals postage is paid at Providence, Rhode Island. Postmaster: Send address changes to Proceedings, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2213 USA.

© 2024 by the American Mathematical Society. All rights reserved.

This journal is indexed in *Mathematical Reviews*, *Zentralblatt MATH*, *Science Citation Index*®, *Science Citation Index*™-Expanded, *ISI Alerting Services*™, *CompuMath Citation Index*®, and *Current Contents*®/Physical, Chemical & Earth Sciences. This journal is archived in *Portico* and in *CLOCKSS*.

Printed in the United States of America.

⊗ The paper used in this journal is acid-free and falls within the guidelines established to ensure permanence and durability.

10 9 8 7 6 5 4 3 2 1 29 28 27 26 25 24

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Hang Huang, Minimal set of generators of ideals defining nilpotent orbit closures	447
Palak Arora, Meric Augat, Michael T. Jury, and Meredith Sargent, An optimal approximation problem for free polynomials	455
Harshit Yadav, Frobenius monoidal functors from (co)Hopf adjunctions	471
Liran Shaul, Categorical properties of reduction functors over non-positive DG-rings	489
Kyle Hammer, Thomas W. Mattman, Jonathan W. Sands, and Daniel Vallières, The special value $u = 1$ of Artin-Ihara L-functions	501
Benjamin Steinberg, Contractibility of the orbit space of the p-subgroup complex via Brown-Forman discrete Morse theory	515
Debanjana Kundu and Florian Sprung, Cotorsion of anti-cyclotomic Selmer groups on average	521
Tom De Medts, Louis Rowen, and Yoav Segev, Primitive 4-generated axial algebras of Jordan type	537
Yasufumi Nitta and Shunsuke Saito, Examples of relatively Ding unstable Calabi dream manifolds	553
Péter Maga and Gergely Zábrádi, The sup-norm problem for automorphic cusp forms of $\mathrm{PGL}(n, \mathbb{Z}[i])$	559
Marco Trombetti, The structure skew brace associated with a finite non-degenerate solution of the Yang-Baxter equation is finitely presented	573
John William MacQuarrie and Fernando dos Reis Naves, Quotient bifinite extensions and the finitistic dimension conjecture	585
Nuno Freitas and Filip Najman, Two results on $x^r + y^r = dz^p$	591
Jiamin Li and Michael Perlman, Socle degrees for local cohomology modules of thickenings of maximal minors and sub-maximal Pfaffians	599

B. ANALYSIS

Dongyang Chen, Measures of weak non-compactness in $L_1(\mu)$-spaces	617
Peijia Liu, The extremal lengths of conformal Riemannian metrics on Riemann surfaces	631
Xiaobao Zhu, Another remark on a result of Ding-Jost-Li-Wang	639
Ákos Nagy and Gonçalo Oliveira, On the bifurcation theory of the Ginzburg-Landau equations	653
Philip T. Gressman, Lillian B. Pierce, Joris Roos, and Po-Lam Yung, A new type of superorthogonality	665
Moritz Gerlach and Jochen Glück, On characteristics of the range of kernel operators	677
John N. Treuer, Sufficient condition for compactness of the $\bar{\partial}$-Neumann operator using the Levi core	691
Liviu Ornea and Misha Verbitsky, Bimeromorphic geometry of LCK manifolds	701
Naohiko Kasuya and Daniele Zuddas, On the strongly pseudoconcave boundary of a compact complex surface	709
Yang Xu, Jun Yan, and Kai Zhao, Stability and weak KAM solutions of contact Hamilton-Jacobi equation	725
Igor A. Vestfrid, Quasi-isometries in continuous functions spaces	739
Pablo Galindo and Vinícius C. C. Miranda, Some properties of p-limited sets	749

C. APPLIED MATHEMATICS

Zhaohai Ma and Pierre Magal, Global asymptotic stability for Gurtin-MacCamy’s population dynamics model	765
David M. Ambrose, Milton C. Lopes Filho, and Helena J. Nussenzweig Lopes, Existence and analyticity of the Lei-Lin solution of the Navier-Stokes equations on the torus	781

D. GEOMETRY

Ivo Terek, Conformal flatness of compact three-dimensional Cotton-parallel manifolds	797
Bo-Hsiung Wang and Ye-Kai Wang, A note on the convex body isoperimetric conjecture in the plane	801
Bo Zhu and Xingyu Zhu, Optimal diameter estimate of three-dimensional Ricci limit spaces	815
Jeffrey S. Case and Aaron J. Tyrrell, A sharp inequality for trace-free matrices with applications to hypersurfaces	823
Nicola Gigli, Andrea Mondino, and Daniele Semola, On the notion of Laplacian bounds on RCD spaces and applications	829
Xin Nie, On circle patterns and spherical conical metrics	843

E. LOGIC AND FOUNDATIONS

Will Brian, The Borel partition spectrum at successors of singular cardinals	855
---	-----

G. TOPOLOGY

Nikolay Abrosimov, Alexander Kolpakov, and Alexander Mednykh, Euclidean volumes of hyperbolic knots	869
Jerzy Kąkol, Ondřej Kurka, and Arkady Leiderman, Some classes of topological spaces extending the class of Δ -spaces	883

CORRIGENDA

Khadime Salame, Corrigendum to “On Lau’s conjecture”	899
--	-----

Editorial Information

To be published in the *Proceedings*, a paper must be correct, new, nontrivial, and significant. Further, it must be well written and of interest to a substantial number of mathematicians. Piecemeal results, such as an inconclusive step toward an unproved major theorem or a minor variation on a known result, are in general not acceptable for publication. *Proceedings* Editors solicit and encourage publication of worthy papers of **length not exceeding 15 published pages**. Published pages are the same size as those generated in the style files provided for $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$.

Information on the backlog for this journal can be found on the AMS website starting from <http://www.ams.org/proc>.

In an effort to make articles available as quickly as possible, articles are electronically published on the AMS website individually after proof is returned from authors and before appearing in an issue.

A Consent to Publish is required before we can begin processing your paper. After a paper is accepted for publication, the Providence office will send a Consent to Publish to all authors of the paper. By submitting a paper to this journal, authors certify that the results have not been submitted to nor are they under consideration for publication by another journal, conference proceedings, or similar publication.

Information for Authors

Initial submission. All articles submitted to this journal are peer reviewed. The AMS has a single blind peer-review process in which the reviewers know who the authors of the manuscript are, but the authors do not have access to the information on who the peer reviewers are. The AMS uses Centralized Manuscript Processing for initial submission. Authors should submit a PDF file using the Initial Manuscript Submission form found at www.ams.org/submission/proc or send one copy of the manuscript to the following address: Centralized Manuscript Processing, PROCEEDINGS OF THE AMS, 201 Charles Street, Providence, RI 02904-2213 USA. If a paper copy is being forwarded to the AMS, indicate that it is for *Proceedings* and include the name of the corresponding author, contact information such as email address or mailing address, and the name of an appropriate Editor to review the paper (see the list of Editors below).

The first page of an article must consist of a *descriptive title*, followed by an *abstract* that summarizes the article in language suitable for workers in the general field (algebra, analysis, etc.). The *descriptive title* should be short but informative; useless or vague phrases such as “some remarks about” or “concerning” should be avoided. The *abstract* should be at least one complete sentence and at most 150 words. Included with the footnotes to the paper should be the 2020 *Mathematics Subject Classification* representing the primary and secondary subjects of the article. The classifications are accessible from www.ams.org/msc/. The Mathematics Subject Classification footnote may be followed by a list of *key words and phrases* describing the subject matter of the article and taken from it. Journal abbreviations used in bibliographies are listed in the latest *Mathematical Reviews* annual index. The series abbreviations are also accessible from www.ams.org/msnhtml/serials.pdf. To help in preparing and verifying references, the AMS offers MR Lookup, a Reference Tool for Linking, at www.ams.org/mrlookup/.

Electronically prepared manuscripts. Manuscripts should be electronically prepared in $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$. To this end, the Society has prepared $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ author packages for each AMS publication. Author packages include instructions for preparing electronic manuscripts, samples, and a style file that generates the particular design specifications of that publication series. Articles properly prepared using the $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ style file and the `\label` and `\ref` commands automatically enable extensive intra-document linking to the bibliography and other elements of the article for searching electronically on the Web.

Authors may retrieve an author package for *Proceedings of the AMS* from www.ams.org/proc/procauthorpac.html. The *AMS Author Handbook* is available in PDF format from the author package link. The author package can also be obtained free of charge by sending email to tech-support@ams.org or from the Publication Division, American Mathematical

Society, 201 Charles Street, Providence, RI 02904-2213 USA. When requesting an author package, please specify the publication in which your paper will appear. Please be sure to include your complete email address.

After acceptance. The source files for the final version of the electronic manuscript should be sent to the Providence office immediately after the paper has been accepted for publication. The author should also submit a PDF of the final version of the paper to the Editor, who will forward a copy to the Providence office. Accepted electronically prepared manuscripts can be submitted via the Web at www.ams.org/submit-book-journal/, sent via email to pub-submit@ams.org, or sent on CD to the Electronic Prepress Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2213 USA. When sending a manuscript electronically via email or CD, please be sure to include a message indicating in which publication the paper has been accepted. Complete instructions on how to send files are included in the author package.

Electronic graphics. Comprehensive instructions on preparing graphics are available starting from www.ams.org/authors/journals.html. A few of the major requirements are given here.

Submit files for graphics as EPS (Encapsulated PostScript) files. This includes graphics originated via a graphics application as well as scanned photographs or other computer-generated images. If this is not possible, TIFF files are acceptable as long as they can be opened in Adobe Photoshop or Illustrator.

Authors using graphics packages for the creation of electronic art should also avoid the use of any lines thinner than 0.5 points in width. Many graphics packages allow the user to specify a “hairline” for a very thin line. Hairlines often look acceptable when proofed on a typical laser printer. However, when produced on a high-resolution laser imagesetter, hairlines become nearly invisible and will be lost entirely in the final printing process.

Screens should be set to values between 15% and 85%. Screens which fall outside of this range are too light or too dark to print correctly. Variations of screens within a graphic should be no less than 10%.

Any graphics created in color will be rendered in grayscale for the printed version unless color printing is authorized by the Managing Editor and the Publisher. In general, color graphics will appear in color in the online version.

AMS policy on making changes to articles after publication. Articles are published on the AMS website individually after proof is returned from authors and before appearing in an issue. To preserve the integrity of electronically published articles, once an article is individually published to the AMS website, changes cannot be made in place in the paper. The AMS does not keep author-related information such as affiliation, current address, and email address up to date after a paper is electronically published.

Corrections of critical errors may be made to the paper by submitting an errata article to the Editor. The errata article will be published electronically, will appear in a future print issue, and will link back and forth on the Web with the original article.

Secure manuscript tracking on the Web. Authors can track their manuscripts through the AMS journal production process using the personal AMS ID and Article ID printed in the upper right-hand corner of the Consent to Publish form sent to each author who publishes in AMS journals. Access to the tracking system is available from www.ams.org/mstrack/. An explanation of each production step is provided on the Web through links from the manuscript tracking screen. Questions can be sent to proc-query@ams.org.

Inquiries. Any inquiries concerning a paper that has been accepted for publication that cannot be answered via the manuscript tracking system mentioned above should be sent to proc-query@ams.org or directly to the Electronic Prepress Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2213 USA.

Editors

The AMS uses Centralized Manuscript Processing for initial submissions to AMS journals. Authors should follow instructions listed on the Initial Submission page found at www.ams.org/proc/procsubmit.html.

Managing Editor: David Futer, Temple University, Philadelphia, PA 19122 USA; e-mail: dfuter@temple.edu

1. ODE, PDE, GLOBAL ANALYSIS, AND DYNAMICAL SYSTEMS

Coordinating Editor: Ryan Hynd, University of Pennsylvania, Philadelphia, PA 19104 USA; e-mail: rhynd@math.upenn.edu

Ergodic theory and dynamical systems, Katrin Gelfert, Universidade Federal do Rio de Janeiro, Instituto de Matemática, Av. Athos da Silveira Ramos 149, Cidade Universitária, C.P. 68530, 21941-909 Rio de Janeiro, RJ, Brazil; e-mail: gelfert@im.ufrj.br

Global analysis, Lu Wang, Yale University, New Haven, CT 06511 USA; e-mail: edluwang@gmail.com

Ordinary differential equations and dynamical systems, Wenxian Shen, Auburn University, Auburn, AL 36849-5310 USA; e-mail: wensexish@auburn.edu

Partial differential equations, Ryan Hynd

2. TOPOLOGY AND GEOMETRY

Coordinating Editor: Jiaping Wang, University of Minnesota, Minneapolis, MN 55455 USA; e-mail: jiaping@math.umn.edu

Algebraic geometry and commutative algebra, Gregory G. Smith, Queen's University, Kingston, ON K7L 3N6, Canada; e-mail: ggsmith@mast.queensu.ca

Algebraic topology, Julie Bergner, University of Virginia, Charlottesville, VA 22904 USA; e-mail: jeb2md@virginia.edu

Convex geometry, Gaoyong Zhang, Courant Institute of Mathematical Sciences, New York, NY 10012 USA; e-mail: gaoyong.zhang@nyu.edu

Differential geometry, Jiaping Wang

Geometric group theory and topology, Genevieve S. Walsh, Tufts University, Medford, MA 02155; e-mail: genevieve.walsh@tufts.edu

Geometric topology, Shelly Harvey, Rice University, Houston, TX 77251-1892 USA; e-mail: shelly@rice.edu

3. ANALYSIS

Coordinating Editor: Javad Mashreghi, Laval University, Quebec, QC G1V 0A6, Canada; e-mail: javad.mashreghi@mat.ulaval.ca

Analysis on metric spaces, Nageswari Shanmugalingam, University of Cincinnati, Cincinnati, OH 45221-0025 USA; e-mail: shanmun@uc.edu

Banach spaces, Stephen Dilworth, University of South Carolina, Columbia, SC 29208 USA; e-mail: dilworth@math.sc.edu

Harmonic analysis, Dmitriy Bilyk, University of Minnesota, Twin Cities, Minneapolis, MN 55408 USA; e-mail: dbilyk@math.umn.edu

Harmonic analysis and linear partial differential equations, Ariel Barton, University of Arkansas, Fayetteville, AR 72701 USA; e-mail: aeb019@uark.edu

Holomorphic functions, holomorphic dynamics, and several complex variables, Filippo Bracci, Università di Roma "Tor Vergata", via della Ricerca Scientifica 1, 00133 Rome, Italy; e-mail: fbracci@mat.uniroma2.it

Operator algebras, Matthew Kennedy, University of Waterloo, Waterloo, ON N2L 3G1, Canada; e-mail: matt.kennedy@uwaterloo.ca

Function spaces and operator theory, Javad Mashreghi

Several complex variables, Harold P. Boas, Texas A&M University, College Station, TX, 77843-3368 USA; e-mail: boas@math.tamu.edu

Spectral and scattering theory, microlocal analysis, Tanya Christiansen, University of Missouri-Columbia, Columbia, MO 65211-0001 USA; e-mail: christiansent@missouri.edu

4. ALGEBRA, NUMBER THEORY, COMBINATORICS, AND LOGIC

Coordinating Editor: Amanda Folsom, Amherst College, Amherst, MA 01002 USA; e-mail: afolsom@amherst.edu

Algebraic number theory and arithmetic geometry, David Savitt, Johns Hopkins University, Baltimore, MD 21218 USA; e-mail: savitt@math.jhu.edu

Analytic number theory and modular forms, Amanda Folsom

Arithmetic geometry, algebraic geometry, and number theory, Rachel Pries, Colorado State University, Fort Collins, CO 80523-1874 USA; e-mail: pries@math.colostate.edu

Combinatorics, Isabella Novik, University of Washington, Seattle, WA 98195-4350 USA; e-mail: novik@uw.edu

Commutative algebra, Claudia Polini, University of Notre Dame, Notre Dame, IN 46556 USA; e-mail: cpolini@nd.edu

Group theory, Martin Liebeck, Imperial College, London, SW7 2AZ, United Kingdom; e-mail: m.liebeck@imperial.ac.uk

Logic and foundations, Vera Fischer, Universität Wien, Institut für Mathematik, Kurt Gödel Research Center, Kolingasse 14-16, 1090 Wien, Austria; e-mail: vera.fischer@univie.ac.at

Modular forms, hypergeometric functions, and their related character sums and supercongruences, Ling Long, Louisiana State University, Baton Rouge, LA 70803 USA; e-mail: llong@math.lsu.edu

Noncommutative algebra, homological algebra, and representation theory, Sarah Witherspoon, Texas A&M University, College Station, TX 77843-3368 USA; e-mail: sjw@math.tamu.edu

Noncommutative algebra, monoidal categories, and Hopf algebras, Chelsea Walton, Rice University, Houston, TX 77005 USA; e-mail: notlaw@rice.edu

5. APPLIED MATHEMATICS, PROBABILITY, AND STATISTICS

Coordinating Editor: Zhen-Qing Chen, University of Washington, Seattle, WA 98195 USA; e-mail: zqchen@uw.edu

Integrable systems and special functions, Mourad Ismail, University of Central Florida, Orlando, FL 32816 USA; and King Saud University, Riyadh, Saudi Arabia; e-mail: mourad.eh.ismail@gmail.com

Nonlinear evolution PDEs and dispersive equations, Benoit Pausader, Brown University, Providence, RI 02912 USA; e-mail: benoit-pausader@brown.edu

Probability, Zhen-Qing Chen

Probability and stochastic analysis, Amarjit Budhiraja, University of North Carolina, Chapel Hill, NC 27599-3260 USA; e-mail: budhiraj@email.unc.edu

Special functions and approximation theory, Yuan Xu, University of Oregon, Eugene, OR 97403-1205 USA; e-mail: yuan@uoregon.edu

(Continued from back cover)

Liviu Ornea and Misha Verbitsky , Bimeromorphic geometry of LCK manifolds	701
Naohiko Kasuya and Daniele Zuddas , On the strongly pseudoconcave boundary of a compact complex surface	709
Yang Xu, Jun Yan, and Kai Zhao , Stability and weak KAM solutions of contact Hamilton-Jacobi equation	725
Igor A. Vestfrid , Quasi-isometries in continuous functions spaces	739
Pablo Galindo and Vinícius C. C. Miranda , Some properties of p-limited sets	749

C. APPLIED MATHEMATICS

Zhaohai Ma and Pierre Magal , Global asymptotic stability for Gurtin-MacCamy's population dynamics model	765
David M. Ambrose, Milton C. Lopes Filho, and Helena J. Nussenzveig Lopes , Existence and analyticity of the Lei-Lin solution of the Navier-Stokes equations on the torus	781

D. GEOMETRY

Ivo Terek , Conformal flatness of compact three-dimensional Cotton-parallel manifolds	797
Bo-Hshiong Wang and Ye-Kai Wang , A note on the convex body isoperimetric conjecture in the plane	801
Bo Zhu and Xingyu Zhu , Optimal diameter estimate of three-dimensional Ricci limit spaces	815
Jeffrey S. Case and Aaron J. Tyrrell , A sharp inequality for trace-free matrices with applications to hypersurfaces	823
Nicola Gigli, Andrea Mondino, and Daniele Semola , On the notion of Laplacian bounds on RCD spaces and applications	829
Xin Nie , On circle patterns and spherical conical metrics	843

E. LOGIC AND FOUNDATIONS

Will Brian , The Borel partition spectrum at successors of singular cardinals	855
--	-----

G. TOPOLOGY

Nikolay Abrosimov, Alexander Kolpakov, and Alexander Mednykh , Euclidean volumes of hyperbolic knots	869
Jerzy Kąkol, Ondřej Kurka, and Arkady Leiderman , Some classes of topological spaces extending the class of Δ-spaces	883

CORRIGENDA

Khadime Salame , Corrigendum to "On Lau's conjecture"	899
--	-----

PROCEEDINGS OF THE AMERICAN MATHEMATICAL SOCIETY
CONTENTS

Vol. 152, No. 2

Whole No. 776

February 2024

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Hang Huang, Minimal set of generators of ideals defining nilpotent orbit closures	447
Palak Arora, Meric Augat, Michael T. Jury, and Meredith Sargent, An optimal approximation problem for free polynomials	455
Harshit Yadav, Frobenius monoidal functors from (co)Hopf adjunctions	471
Liran Shaul, Categorical properties of reduction functors over non-positive DG-rings	489
Kyle Hammer, Thomas W. Mattman, Jonathan W. Sands, and Daniel Vallières, The special value $u = 1$ of Artin-Ihara L-functions	501
Benjamin Steinberg, Contractibility of the orbit space of the p-subgroup complex via Brown-Forman discrete Morse theory	515
Debanjana Kundu and Florian Sprung, Cotorsion of anti-cyclotomic Selmer groups on average	521
Tom De Medts, Louis Rowen, and Yoav Segev, Primitive 4-generated axial algebras of Jordan type	537
Yasufumi Nitta and Shunsuke Saito, Examples of relatively Ding unstable Calabi dream manifolds	553
Péter Maga and Gergely Záradi, The sup-norm problem for automorphic cusp forms of $\mathrm{PGL}(n, \mathbb{Z}[i])$	559
Marco Trombetti, The structure skew brace associated with a finite non-degenerate solution of the Yang-Baxter equation is finitely presented	573
John William MacQuarrie and Fernando dos Reis Naves, Quotient bifinite extensions and the finitistic dimension conjecture	585
Nuno Freitas and Filip Najman, Two results on $x^r + y^r = dz^p$	591
Jiamin Li and Michael Perlman, Socle degrees for local cohomology modules of thickenings of maximal minors and sub-maximal Pfaffians	599

B. ANALYSIS

Dongyang Chen, Measures of weak non-compactness in $L_1(\mu)$-spaces	617
Peijia Liu, The extremal lengths of conformal Riemannian metrics on Riemann surfaces	631
Xiaobao Zhu, Another remark on a result of Ding-Jost-Li-Wang	639
Ákos Nagy and Gonçalo Oliveira, On the bifurcation theory of the Ginzburg-Landau equations	653
Philip T. Gressman, Lillian B. Pierce, Joris Roos, and Po-Lam Yung, A new type of superorthogonality	665
Moritz Gerlach and Jochen Glück, On characteristics of the range of kernel operators	677
John N. Treuer, Sufficient condition for compactness of the $\bar{\partial}$-Neumann operator using the Levi core	691

(Continued on inside back cover)



0002-9939(202402)152:2;1-K

