VOLUME 41 NUMBER 1 JANUARY 2004

BULLETIN (NEW SERIES) OF THE AMERICAN MATHEMATICAL SOCIETY

EDITORS

Bulletin Articles Donald G. Saari
Chief Editor

Book Reviews Robert L. Devaney

PROVIDENCE, RHODE ISLAND USA

ISSN 0273-0979

Available electronically at
www.ams.org/bull/

Bulletin (New Series) of the American Mathematical Society

This journal is devoted to articles of the following types:

Bulletin Articles

Two types of articles will be included in this section: (1) papers that present a clear and insightful exposition of significant aspects of contemporary mathematical research, including Gibbs Lectures, Progress in Mathematics Lectures, and Retiring Presidential Addresses; and (2) brief, timely reports on important mathematical developments, which are normally solicited and often written by a disinterested expert.

Book Reviews

Book Reviews are accepted for publication by invitation only. Unsolicited manuscripts will not be considered.

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

Publisher Item Identifier. The Publisher Item Identifier (PII) appears at the top of the first page of each article published in this journal. This alphanumeric string of characters uniquely identifies each article and can be used for future cataloging, searching, and electronic retrieval.

Postings to the AMS website. Articles are posted to the AMS website individually after proof is returned from authors and before appearing in an issue.

Subscription information. *Bulletin* (*New Series*) *of the American Mathematical Society* is published quarterly. The *Bulletin* is also accessible electronically, starting with the January 1992 issue, from `www.ams.org/publications/`. For paper delivery, subscription prices for Volume 41 (2004) are $375 list, $300 institutional member, $225 individual member. The subscription price for members is included in the annual dues. A late charge of 10% of the subscription price will be imposed upon orders received from nonmembers after January 1 of the subscription year. Subscribers outside the United States and India must pay a postage surcharge of $8; subscribers in India must pay a postage surcharge of $15. Expedited delivery to destinations in North America is $12; elsewhere $28.

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

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 the American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA.

Copying and reprinting. Material in this journal may be reproduced by any means for educational and scientific purposes without fee or permission with the exception of reproduction by services that collect fees for delivery of documents and provided that the customary acknowledgment of the source is given. This consent does not extend to other kinds of copying for general distribution, for advertising or promotional purposes, or for resale. Requests for permission for commercial use of material should be addressed to the Acquisitions Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA. Requests can also be made by e-mail to `reprint-permission@ams.org`.

Excluded from these provisions is material in articles for which the author holds copyright. In such cases, requests for permission to use or reprint 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.)

Bulletin (*New Series*) *of the American Mathematical Society* is published quarterly by the American Mathematical Society at 201 Charles Street, Providence, RI 02904-2294 USA. Periodicals postage is paid at Providence, Rhode Island, and additional mailing offices. Postmaster: Send address changes to Bulletin, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA.

© 2004 American Mathematical Society. All rights reserved.

This journal is indexed in *Mathematical Reviews*, *Science Citation Index*®, *Science Citation Index*™*–Expanded*, *ISI Alerting Services*℠, *CompuMath Citation Index*®, and *Current Contents*®*/Physical, Chemical & Earth Sciences.*

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 09 08 07 06 05 04

BULLETIN OF THE AMERICAN MATHEMATICAL SOCIETY

CONTENTS

Vol. 41, No. 1 **January 2004**

BULLETIN ARTICLES

Charles Pugh, Michael Shub, and an appendix by Alexander Starkov, Stable ergodicity 1

Tauno Metsänkylä, Catalan's Conjecture: Another old Diophantine problem solved 43

Stephen S. Gelbart and Stephen D. Miller, Riemann's zeta function and beyond 59

BOOK REVIEWS

Earl Taft (Reviewer), The concise handbook of algebra, edited by Alexander V. Mikhalev and Günter F. Pilz (eds.) 113

Stephen J. DeCanio (Reviewer), Computation and complexity in economic behavior and organization, by Kenneth R. Mount and Stanley Reiter 117

Richard Moeckel (Reviewer), Classical and celestial mechanics, the Recife lectures, edited by Hildeberto Cabral and Florin Diacu (eds.) 121

David Goss (Reviewer), Number theory in function fields, by Michael Rosen 127

Daniel S. Silver (Reviewer), Knots, by G. Burde and H. Zieschang; Algebraic invariants of links, by Jonathan Hillman 135

The most recent articles of the AMS journals *Electronic Research Announcements*, *Conformal Geometry and Dynamics*, and *Representation Theory* are listed at the back of this issue.

Editorial Board for Bulletin Articles

John C. Baez
Martin R. Bridson
Eric M. Friedlander
Craig L. Huneke
Krystyna M. Kuperberg
Barry Mazur
Haynes R. Miller
Paul H. Rabinowitz
Donald G. Saari, Chair
Panagiotis E. Souganidis
Michael Wolf

Editorial Board for Book Reviews

William D. Blair
Robert L. Devaney, Chair
Lawrence C. Evans
Steven Krantz
John C. Mayer
Philip E. Protter
Audrey A. Terras

Chief Editor: Donald G. Saari

Editorial Information

As of October 31, 2003, the backlog for this journal was approximately 0 issues. This estimate is the result of reducing the number of manuscripts for this journal in the Providence office that have not yet gone to the printer on the above date by the number of articles assigned to issues to be published in four months (the time necessary for editing and composing a typical issue). In an effort to make articles available as quickly as possible, articles are posted to the AMS website individually after proof is returned from authors and before appearing in an issue.

A Consent to Publish and Copyright Agreement is required before a paper will be published in this journal. After a paper is accepted for publication, the Providence office will send a Consent to Publish and Copyright Agreement 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. *Bulletin* articles may be of two types: (1) reasonably broad expository surveys of a currently active area of mathematical research and (2) reports on a recent accomplishment in mathematical research. Three copies of the manuscript should be submitted to Professor Donald G. Saari, Department of Mathematics, Multipurpose Science and Technology Building, University of California, Irvine, CA 92697-3875 USA. Manuscripts may also be submitted to other members of the Editorial Board, with a copy of the cover letter and of the manuscript also sent to Professor Donald G. Saari. The author should keep one copy. *Bulletin* articles may also be submitted electronically in $\mathcal{AMS}$-LaTeX or $\mathcal{AMS}$-TeX to `bams@math.uci.edu`.

The first page 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 a brief technical description of the new material.

Both types of *Bulletin* articles should be written so as to be understandable by graduate students or mathematicians who are not experts in the subject matter of the article. A well-written expository article will include motivating problems and examples, some indication of the historical development of the subject, and of course the results and open problems that make it an interesting and exciting area of mathematics. In most cases proofs should be at most briefly sketched, and there should be a good bibliography whose main aim is to help those wishing to pursue the subject further. Articles reporting on recent mathematical research should include an introductory section addressed to nonexperts describing the motivation, background, and significance of the results announced.

Following the statement of results, there should be a sketch of proofs that may be addressed to experts, including elements of the proof which are novel. References should be given so that an interested reader can find the details.

Included with the footnotes in each paper should be the 2000 *Mathematics Subject Classification* representing the primary and secondary subjects of the article. The classifications are accessible from `www.ams.org/msc/`. The list of classifications is also available in print starting with the 1999 annual index of *Mathematical Reviews*. 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/publications/`. To help in preparing and verifying references, the AMS offers MR Lookup, a Reference Tool for Linking, at `www.ams.org/mrlookup/`. When the manuscript is submitted, authors should supply the Editor with electronic addresses if available. These will be printed after the postal address at the end of each article.

Bulletin Articles are normally solicited by the Editorial Board, but unsolicited manuscripts will also be considered. In particular, those giving lectures (Gibbs Lectures, Colloquium Lectures, and Progress in Mathematics Lectures) or invited hour addresses at meetings of the Society are encouraged to write up their lectures in a manner that meets the requirements for expository articles described above and to submit their manuscripts for consideration by the Editorial Board for Bulletin Articles.

For Book Reviews the first page must include the title of the book being reviewed; the name(s) of the author(s); publisher; city of publication; year of publication; number of pages, including front matter; price if known; and ISBN. There should also be a footnote with the 2000 *Mathematics Subject Classification* representing the primary and secondary subjects of the book under review. The classifications are accessible from `www.ams.org/msc/` and are also available in print starting with the 1999 annual index of *Mathematical Reviews*. 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. The AMS encourages electronically prepared manuscripts, with a strong preference for $\mathcal{AMS}$-LaTeX. To this end, the Society has prepared $\mathcal{AMS}$-LaTeX author packages for each AMS publication. Author packages include instructions for preparing electronic manuscripts, the *AMS Author Handbook*, samples, and a style file that generates the particular design specifications of that publication series. Articles properly prepared using the $\mathcal{AMS}$-LaTeX 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. Because linking must often be added manually to electronically prepared manuscripts in other forms of TeX, using $\mathcal{AMS}$-LaTeX also reduces the amount of technical intervention once the files are received by the AMS. This results in fewer errors in processing and saves the author proofreading time. $\mathcal{AMS}$-LaTeX papers also move more efficiently through the production stream, helping to minimize publishing costs.

$\mathcal{AMS}$-LaTeX is the highly preferred format of TeX, but author packages are also available in $\mathcal{AMS}$-TeX. Those authors who make use of these style files from the beginning of the writing process will further reduce their own efforts. Manuscripts prepared electronically in LaTeX or plain TeX are normally not acceptable due to the high amount of technical time required to insure that the file will run properly through the AMS in-house production system. LaTeX users will find that $\mathcal{AMS}$-LaTeX is the same as LaTeX with additional commands to simplify the typesetting of mathematics, and users of plain TeX should have the foundation for learning $\mathcal{AMS}$-LaTeX.

Authors may retrieve an author package from the AMS website starting from `www.ams.org/tex/` or via FTP to `ftp.ams.org` (login as `anonymous`, enter username as password, and type `cd pub/author-info`). The *AMS Author Handbook* and the *Instruction Manual* are available in PDF format following the author packages link from `www.ams.org/tex/`. The author package can also be obtained free of charge by sending email to `pub@ams.org`

(Internet) or from the Publication Division, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA. When requesting an author package, please specify $\mathcal{AMS}$-LaTeX or $\mathcal{AMS}$-TeX, Macintosh or IBM (3.5) format, and the publication in which your paper will appear. Please be sure to include your complete mailing address.

At the time of submission, authors should indicate if the paper has been prepared using $\mathcal{AMS}$-LaTeX or $\mathcal{AMS}$-TeX and provide the Editor with a paper manuscript that matches the electronic manuscript. 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 send the final version of the paper manuscript to the Editor, who will forward a copy to the Providence office. Editors will require authors to send their electronically prepared manuscripts to the Providence office in a timely fashion. Electronically prepared manuscripts can be submitted via the Web at `www.ams.org/submit-book-journal/`, sent via email to `pub-submit@ams.org` (Internet), or sent on diskette to the Electronic Prepress Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA. When sending a manuscript electronically via email or diskette, please be sure to include a message indicating in which publication the paper has been accepted. No corrections will be accepted electronically. Authors must mark their changes on their proof copies and return them to the Providence office. Complete instructions on how to send files are included in the author package.

Electronic graphics. Comprehensive instructions on preparing graphics are available from `www.ams.org/jourhtml/authors.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. No matter what method was used to produce the graphic, it is necessary to provide a paper copy to the AMS.

Authors using graphics packages for the creation of electronic art should 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%.

Peer-review submission. *Bulletin* authors may submit manuscripts for peer review as either PDF (strongly recommended) or PostScript files at `http://www.ams.org/peer-review/submission.pl`. Manuscripts must be a single file with images embedded. PostScript files will automatically be converted to PDF, and authors will have a chance to view the manuscript and data entered before releasing the manuscript into the system. Two-digit 2000 Mathematics Subject Classification numbers are included in a pull-down menu; classifications are accessible from `http://www.ams.org/msc/`. Complete author instructions are available at the site.

Authors who cannot supply PDF or PS files may submit paper copy of their manuscript to *Bulletin*/Peer-Review Submissions, 201 Charles Street, Providence, RI 02904-2294 USA. These submissions will be scanned into a PDF file and entered by AMS staff into the peer-review system. Please provide all the data required in the submission form to avoid delays in posting the manuscript.

Upon submission the manuscript will either move immediately into the AMS posting stream or go through conversion to PDF. The manuscript will then be placed in a secure area for the *Bulletin* Chief Editor, who will be notified weekly of new submissions. The Editor will collect these submissions and assign them to subject area specialists for peer review. Queries concerning the status of submissions should be sent to the Editor at `bams@math.uci.edu`.

AMS policy on making changes to articles after posting. Articles are posted to 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 posted to the AMS website but not yet in an issue, changes cannot be made in place in the paper. However, an "Added after posting" section may be added to the paper right before the References when there is a critical error in the content of the paper. The "Added after posting" section gives the author an opportunity to correct this type of critical error before the article is put into an issue for printing and before it is then reposted with the issue. The "Added after posting" section remains a permanent part of 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 initially posted.

Once the article is assigned to an issue, even if the issue has not yet been posted to the AMS website, corrections may be made to the paper by submitting a traditional errata article to the Editor. The errata article will appear in a future print issue and will link back and forth on the Web to the original article online.

Secure manuscript tracking on the Web and via email. 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/` or via email sent to `mstrack-query@ams.org`. To access by email, on the subject line of the message simply enter the AMS ID and Article ID. To track more than one manuscript by email, choose one of the Article IDs and enter the AMS ID and the Article ID followed by the word *all* on the subject line. An explanation of each production step is provided on the Web through links from the manuscript tracking screen. Questions can be sent to `bull-query@ams.org`.

TEX files available. Beginning with the January 1992 issue of the *Bulletin* and the January 1996 issues of *Transactions, Proceedings, Mathematics of Computation*, and the *Journal of the AMS*, TEX files can be downloaded from the AMS website, starting from `www.ams.org/journals/`. Authors without Web access may request their files at the address given below after the article has been published. For *Bulletin* papers published in 1987 through 1991 and for *Transactions, Proceedings, Mathematics of Computation*, and the *Journal of the AMS* papers published in 1987 through 1995, TEX files are available upon request for authors without Web access by sending email to `file-request@ams.org` or by contacting the Electronic Prepress Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA. The request should include the title of the paper, the name(s) of the author(s), the name of the publication in which the paper has or will appear, and the volume and issue numbers if known. The TEX file will be sent to the author making the request after the article goes to the printer. If the requestor can receive Internet email, please include the email address to which the file should be sent. Otherwise please indicate a diskette format and postal address to which a disk should be mailed. **Note:** Because TEX production at the AMS sometimes requires extra fonts and macros that are not yet publicly available, TEX files cannot be guaranteed to run through the author's version of TEX without errors. The AMS regrets that it cannot provide support to eliminate such errors in the author's TEX environment.

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 `bull-query@ams.org` or directly to the Electronic Prepress Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA.

AMERICAN MATHEMATICAL SOCIETY

Electronic Research Announcements OF THE AMERICAN MATHEMATICAL SOCIETY

MANAGING EDITOR
Svetlana Katok

EDITORIAL BOARD
Stuart Antman
David Benson
Dmitri Burago
Tobias H. Colding
Mark Freidlin
Ronald Graham
Yitzhak Katznelson
David Kazhdan
Alexander Kechris
Alexandre Kirillov
Frances Kirwan
Krystyna Kuperberg
Robert Lazarsfeld
Gregory Margulis
Hugh Montgomery
Walter Neumann
Klaus Schmidt
Masamichi Takesaki
Michael Taylor
Guido Weiss
Zhihong (Jeff) Xia
Don Zagier
Efim Zelmanov

Most recent articles

Manfred Einsiedler and **Elon Lindenstrauss,** *Rigidity properties of $\mathbb{Z}^d$-actions on tori and solenoids*

Karim Boulabiar, Gerard Buskes, and **Gleb Sirotkin,** *A strongly diagonal power of algebraic order bounded disjointness preserving operators*

Vasily Denisov and **Andrey Muravnik,** *On asymptotic behavior of solutions of the Dirichlet problem in half-space for linear and quasi-linear elliptic equations*

Bernd Ammann, Robert Lauter, and **Victor Nistor,** *Algebras of pseudodifferential operators on complete manifolds*

Michael Anderson, Atsushi Katsuda, Yaroslav Kurylev, Matti Lassas, and **Michael Taylor,** *Metric tensor estimates, geometric convergence, and inverse boundary problems*

Eric Babson and **Dmitry N. Kozlov,** *Topological obstructions to graph colorings*

Zhi-Wei Sun, *Unification of zero-sum problems, subset sums and covers of $\mathbb{Z}$*

A. Yu. Ol'shanski and **M. V. Sapir,** *The conjugacy problem for groups, and Higman embeddings*

The American Mathematical Society's electronic-only journal, *Electronic Research Announcements of the AMS* (ERA-AMS), is available on the World Wide Web at www.ams.org/era.

ERA-AMS publishes high-quality research announcements of significant advances in all branches of mathematics. Authors may submit manuscripts to any editor. All papers are reviewed, and the entire Editorial Board must approve the acceptance of any paper. Papers are posted as soon as they are accepted and processed by the AMS.

AMS
AMERICAN MATHEMATICAL SOCIETY

AMERICAN MATHEMATICAL SOCIETY

CONFORMAL GEOMETRY AND DYNAMICS

AN ELECTRONIC JOURNAL OF THE AMS

MANAGING EDITOR

Linda Keen
City University of New York

EDITORIAL BOARD MEMBERS

K. Astala
University of Jyväskylä

F. W. Gehring
University of Michigan

Tan Lei
Université de Cergy-Pontoise

Howard Masur
University of Illinois at Chicago

Yair N. Minsky
Yale University

Most recent articles

Cusps in complex boundaries of one-dimensional Teichmüller space
Hideki Miyachi

Constructing rational maps from subdivision rules
J. W. Cannon, W. J. Floyd, R. Kenyon, and W. R. Parry

Distinguishing properties of weak slice conditions
Stephen M. Buckley and Alexander Stanoyevitch

Volumes of hyperbolic 3-manifolds. Notes on a paper of Gabai, Meyerhoff, and Milley
T. H. Marshall and G. J. Martin

Mating Kleinian groups isomorphic to $C_2 * C_5$ with quadratic polynomials
Marianne Freiberger

Distortion in the spherical metric under quasiconformal mappings
Peter A. Hästö

Transversely projective structures on a transversely holomorphic foliation, II
Indranil Biswas

Some presentations for $\overline{\Gamma}_0(N)$
Antonio Lascurain Orive

AMS
AMERICAN MATHEMATICAL SOCIETY

This journal provides a forum for mathematical work in related fields broadly described as conformal geometry and dynamics. This includes complex dynamics (and real dynamics using complex techniques), Kleinian groups, hyperbolic geometry, Teichmüller theory, and quasiconformal mappings.

www.ams.org/ecgd

AMERICAN MATHEMATICAL SOCIETY

REPRESENTATION THEORY

AN ELECTRONIC JOURNAL OF THE AMS

MANAGING EDITOR

D. Milicic
University of Utah

EDITORIAL BOARD MEMBERS

A. Knapp
SUNY at Stony Brook

J. Lepowsky
Rutgers University

G. Lusztig
Massachusetts Institute of Technology

B. Speh
Cornell University

David Vogan
Massachusetts Institute of Technology

Most recent articles

Degenerate principal series for even-orthogonal groups
Dubravka Ban and Chris Jantzen

Multiplicity-free products and restrictions of Weyl characters
John R. Stembridge

Character sheaves on disconnected groups, I
G. Lusztig

Elliptic central characters and blocks of finite dimensional representations of quantum affine algebras
Pavel I. Etingof and Adriano A. Moura

Category $\mathcal{O}$: Quivers and endomorphism rings of projectives
Catharina Stroppel

The Fischer-Clifford matrices of a maximal subgroup of Fi'_{24}
Faryad Ali and Jamshid Moori

The Fourier-Jacobi map and small representations
Martin H. Weissman

t-analogs of q-characters of Kirillov-Reshetikhin modules of quantum affine algebras
Hiraku Nakajima

Canonical bases and quiver varieties
Michela Varagnolo and Eric Vasserot

Twisted group rings of metacyclic groups
Rachel Quinlan

Presenting generalized q-Schur algebras
Stephen Doty

This journal is devoted to research in representation theory. It seeks to maintain a high standard for exposition as well as for mathematical content. Papers are posted in several different electronic formats on the AMS website via the World Wide Web.

AMS
AMERICAN MATHEMATICAL SOCIETY

► www.ams.org/ert

BULLETIN OF THE AMERICAN MATHEMATICAL SOCIETY

CONTENTS

Vol. 41, No. 1 **January 2004**

BULLETIN ARTICLES

Charles Pugh, Michael Shub, and an appendix by Alexander Starkov, Stable ergodicity 1

Tauno Metsänkylä, Catalan's Conjecture: Another old Diophantine problem solved 43

Stephen S. Gelbart and Stephen D. Miller, Riemann's zeta function and beyond 59

BOOK REVIEWS

Earl Taft (Reviewer), The concise handbook of algebra by Alexander V. Mikhalev and Günter F. Pilz (eds.) 113

Stephen J. DeCanio (Reviewer), Computation and complexity in economic behavior and organization by Kenneth R. Mount and Stanley Reiter 117

Richard Moeckel (Reviewer), Classical and celestial mechanics, the Recife lectures by Hildeberto Cabral and Florin Diacu (eds.) 121

David Goss (Reviewer), Number theory in function fields by Michael Rosen 127

Daniel S. Silver (Reviewer), Knots by G. Burde and H. Zieschang; Algebraic invariants of links by Jonathan Hillman 135

The most recent articles of the AMS journals *Electronic Research Announcements*, *Conformal Geometry and Dynamics*, and *Representation Theory* are listed at the back of this issue.

0273-0979(200401)41:1;1-W

Bulletin (New Series) of the Amer. Math. Soc. VOLUME 41 NUMBER 1 PAGES 1–148 JANUARY 2004