VOLUME 12 NUMBER 4



JOURNAL

AMERICAN MATHEMATICAL SOCIETY

EDITORS

Ingrid Daubechies Benedict H. Gross Carlos Kenig Bernd Sturmfels Clifford Taubes

ASSOCIATE EDITORS

James G. Arthur Alexander Beilinson F. Michael Christ Constantine M. Dafermos Lawrence C. Evans Michael J. Hopkins Ehud Hrushovski Henryk Iwaniec A. J. de Jong **Robert Lazarsfeld** Grigorii A. Margulis Curtis T. McMullen Marina Ratner **Richard Schoen Richard Stanley** W. Hugh Woodin Efim Zelmanov

PROVIDENCE, RHODE ISLAND USA

ISSN 0894-0347

Available electronically at www.ams.org/jams/

Journal of the American Mathematical Society

This journal is devoted to research articles of the highest quality in all areas of pure and applied mathematics.

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 e-MATH. Articles are posted individually to e-MATH before appearing in an issue.

Subscription information. The Journal of the American Mathematical Society is published quarterly. Beginning January 1996 the Journal of the American Mathematical Society is accessible from e-MATH via the World Wide Web at the URL http://www.ams. org/publications/. Subscription prices for Volume 12 (1999) are as follows: for paper delivery, \$199 list, \$159 institutional member, \$179 corporate member, \$111 individual member; for electronic delivery, \$179 list, \$143 institutional member, \$161 corporate member, \$107 individual member. Upon request, subscribers to paper delivery of this journal are also entitled to receive electronic delivery. If ordering the paper version, add \$8 for surface delivery outside the United States and India; \$18 to India. Expedited delivery to destinations in North America is \$15; elsewhere \$40. For paper delivery a late charge of 10% of the subscription price will be imposed upon orders received from nonmembers after January 1 of the subscription year.

Back number information. For back issues see the AMS Catalog of Publications.

Subscriptions and orders should be addressed to the American Mathematical Society, P.O. Box 5904, Boston, MA 02206-5904. All orders must be accompanied by payment. Other correspondence should be addressed to P.O. Box 6248, Providence, RI 02940-6248.

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 Assistant to the Publisher, American Mathematical Society, P.O. Box 6248, Providence, RI 02940-6248. 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.)

© 1999 by the American Mathematical Society. All rights reserved.

Current Contents[®]/Physical, Chemical & Earth Sciences.

Printed in the United States of America.

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

 $10 \ 9 \ 8 \ 7 \ 6 \ 5 \ 4 \ 3 \ 2 \ 1 \qquad 04 \ 03 \ 02 \ 01 \ 00 \ 99$

The Journal of the American Mathematical Society is published quarterly by the American Mathematical Society at 201 Charles Street, Providence, RI 02904-2213 and is mailed from Providence, Rhode Island. Periodicals postage is paid at Providence, Rhode Island. Postmaster: Send address changes to Journal of the AMS, American Mathematical Society, P.O. Box 6248, Providence, RI 02940-6248.

This journal is indexed in Science Citation Index[®], SciSearch[®],

Research Alert[®], CompuMath Citation Index[®], and

INDEX TO VOLUME 12 (1999)

Acquistapace, F., Andradas, C., and Broglia, F. Separation of semialgebraic sets, 703

Agler, J., and Young, N. J. A converse to a theorem of Adamyan, Arov and Krein, 305 Andradas, C. See Acquistapace, F.

Andrews, George E., Schilling, Anne, and Warnaar, S. Ole. An A₂ Bailey lemma and Rogers-Ramanujan-type identities, 677

Baik, Jinho, Deift, Percy, and Johansson, Kurt. On the distribution of the length of the longest increasing subsequence of random permutations, 1119

- Bourgain, J. Global wellposedness of defocusing critical nonlinear Schrödinger equation in the radial case, 145
- Bourgain, Jean. See Friedgut, Ehud

Bridson, Martin R. Fractional isoperimetric inequalities and subgroup distortion, 1103

- Broglia, F. See Acquistapace, F.
- Carbery, Anthony, Christ, Michael, and Wright, James. Multidimensional van der Corput and sublevel set estimates, 981
- Cherbonnier, Frédéric, and Colmez, Pierre. Théorie d'Iwasawa des représentations p-adiques d'un corps local, 241

Christ, Michael. See Carbery, Anthony

Colmez, Pierre. See Cherbonnier, Frédéric

- Conrad, Brian, Diamond, Fred, and Taylor, Richard. Modularity of certain potentially Barsotti-Tate Galois representations, 521
- Deift, Percy. See Baik, Jinho

Diamond, Fred. See Conrad, Brian

- Faltings, Gerd. Integral crystalline cohomology over very ramified valuation rings, 117
- Fenley, Sérgio R. Foliations with good geometry, 619
- Fomin, Sergey, and Zelevinsky, Andrei. Double Bruhat cells and total positivity, 335
- Ford, Kevin B. Addendum and corrigendum to "The representation of numbers as sums of unlike powers. II", 1213
- Friedgut, Ehud, and an appendix by Bourgain, Jean. Sharp thresholds of graph properties, and the k-sat problem, 1017
- Ginzburg, David, Rallis, Stephen, and Soudry, David. On a correspondence between cuspidal representations of GL_{2n} and $\widetilde{\operatorname{Sp}}_{2n}$, 849
- Goncharov, Alexander. Volumes of hyperbolic manifolds and mixed Tate motives, 569
- Green, Barry, and Matignon, Michel. Order p automorphisms of the open disc of a p-adic field, 269
- Hoffmann, Detlev W. Pythagoras numbers of fields, 839
- Jacquet, Hervé, Lapid, Erez, and Rogawski, Jonathan. *Periods of automorphic forms*, 173 Johansson, Kurt. *See* Baik, Jinho
- Kawamata, Yujiro. Deformations of canonical singularities, 85
- Klainerman, Sergiu, and Tataru, Daniel. On the optimal local regularity for the Yang-Mills equations in \mathbb{R}^{4+1} , 93
- Knutson, Allen, and Tao, Terence. The honeycomb model of $GL_n(\mathbb{C})$ tensor products I: Proof of the saturation conjecture, 1055

Kollár, János. Real algebraic threefolds II. Minimal model program, 33

Lapid, Erez. See Jacquet, Hervé

Lempert, László. The Dolbeault complex in infinite dimensions II, 775

Liebeck, Martin W., and Shalev, Aner. Simple groups, permutation groups, and probability, 497 Lind, Douglas, and Schmidt, Klaus. Homoclinic points of algebraic \mathbb{Z}^d -actions, 953

- Liu, Tai-Ping, and Yang, Tong. L_1 stability for 2×2 systems of hyperbolic conservation laws, 729
- Matignon, Michel. See Green, Barry
- Nazarov, F., Treil, S., and Volberg, A. The Bellman functions and two-weight inequalities for Haar multipliers, 909
- Rallis, Stephen. See Ginzburg, David
- Rogawski, Jonathan. See Jacquet, Hervé
- Schilling, Anne. See Andrews, George E.
- Schmidt, Bernhard. Cyclotomic integers and finite geometry, 929
- Schmidt, Klaus. See Lind, Douglas

INDEX TO VOLUME 12 (1999)

Schoen, Chad. On the image of the l-adic Abel-Jacobi map for a variety over the algebraic closure of a finite field, 795

Shalev, Aner. See Liebeck, Martin W.

- Sogge, Christopher D. Concerning Nikodym-type sets in 3-dimensional curved spaces, 1
- Soudry, David. See Ginzburg, David
- Spivakovsky, Mark. A new proof of D. Popescu's theorem on smoothing of ring homomorphisms, 381
- Tao, Terence. See Knutson, Allen
- Tataru, Daniel. See Klainerman, Sergiu
- Taylor, Richard. See Conrad, Brian
- Todorčević, Stevo. Compact subsets of the first Baire class, 1179
- Treil, S. See Nazarov, F.
- Villadsen, Jesper. On the stable rank of simple C*-algebras, 1091
- Volberg, A. See Nazarov, F.
- Warnaar, S. Ole. See Andrews, George E.
- Wright, James. See Carbery, Anthony
- Wu, Sijue. Well-posedness in Sobolev spaces of the full water wave problem in 3-D, 445
- Yang, Tong. See Liu, Tai-Ping
- Young, N. J. See Agler, J.
- Zelevinsky, Andrei. See Fomin, Sergey



JOURNAL

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

EDITORS

Ingrid Daubechies Benedict H. Gross Carlos Kenig Bernd Sturmfels Clifford Taubes

ASSOCIATE EDITORS

James G. Arthur Alexander Beilinson F. Michael Christ Constantine M. Dafermos Lawrence C. Evans Michael J. Hopkins Ehud Hrushovski Henryk Iwaniec A. J. de Jong Robert Lazarsfeld Grigorii A. Margulis Curtis T. McMullen Marina Ratner Richard Schoen **Richard Stanley** W. Hugh Woodin Efim Zelmanov

PROVIDENCE, RHODE ISLAND USA

ISSN 0894-0347

Journal of the American Mathematical Society

This journal is devoted to research articles of the highest quality in all areas of pure and applied mathematics.

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 e-MATH. Articles are posted individually to e-MATH before appearing in an issue.

Subscription information. The Journal of the American Mathematical Society is published quarterly. Beginning January 1996 the Journal of the American Mathematical Society is accessible from e-MATH via the World Wide Web at the URL http://www.ams. org/publications/. Subscription prices for Volume 12 (1999) are as follows: for paper delivery, \$199 list, \$159 institutional member, \$179 corporate member, \$111 individual member; for electronic delivery, \$179 list, \$143 institutional member, \$161 corporate member, \$107 individual member. Upon request, subscribers to paper delivery of this journal are also entitled to receive electronic delivery. If ordering the paper version, add \$8 for surface delivery outside the United States and India; \$18 to India. Expedited delivery to destinations in North America is \$15; elsewhere \$40. For paper delivery a late charge of 10% of the subscription price will be imposed upon orders received from nonmembers after January 1 of the subscription year.

Back number information. For back issues see the AMS Catalog of Publications.

Subscriptions and orders should be addressed to the American Mathematical Society, P.O. Box 5904, Boston, MA 02206-5904. All orders must be accompanied by payment. Other correspondence should be addressed to P.O. Box 6248, Providence, RI 02940-6248.

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 Assistant to the Publisher, American Mathematical Society, P.O. Box 6248, Providence, RI 02940-6248. 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.)

© 1999 by the American Mathematical Society. All rights reserved.

Current Contents[®]/Physical, Chemical & Earth Sciences.

Printed in the United States of America.

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

 $10 \ 9 \ 8 \ 7 \ 6 \ 5 \ 4 \ 3 \ 2 \ 1 \qquad 04 \ 03 \ 02 \ 01 \ 00 \ 99$

The Journal of the American Mathematical Society is published quarterly by the American Mathematical Society at 201 Charles Street, Providence, RI 02904-2213 and is mailed from Providence, Rhode Island. Periodicals postage is paid at Providence, Rhode Island. Postmaster: Send address changes to Journal of the AMS, American Mathematical Society, P.O. Box 6248, Providence, RI 02940-6248.

This journal is indexed in Science Citation Index[®], SciSearch[®],

Research Alert[®], CompuMath Citation Index[®], and

JOURNAL OF THE AMERICAN MATHEMATICAL SOCIETY CONTENTS

Vol. 12, No. 1

January 1999

Christopher D. Sogge, Concerning Nikodym-type sets in 3-dimensional	
curved spaces	1
János Kollár, Real algebraic threefolds II. Minimal model program	33
Yujiro Kawamata, Deformations of canonical singularities	85
Sergiu Klainerman and Daniel Tataru, On the optimal local regularity	
for the Yang-Mills equations in \mathbb{R}^{4+1}	93
Gerd Faltings, Integral crystalline cohomology over very ramified valuation	
rings	117
J. Bourgain, Global wellposedness of defocusing critical nonlinear Schrödinger equation in the radial case	145
Hervé Jacquet, Erez Lapid, and Jonathan Rogawski, Periods of	
automorphic forms	173
Frédéric Cherbonnier and Pierre Colmez, Théorie d'Iwasawa des	
représentations <i>p</i> -adiques d'un corps local	241
Barry Green and Michel Matignon, $Order p$ automorphisms of the open	
disc of a p -adic field	269

Vol. 12, No. 2

April 1999

J. Agler and N. J. Young, A converse to a theorem of Adamyan, Arov and	
Krein	305
Sergey Fomin and Andrei Zelevinsky, Double Bruhat cells and total	
positivity	335
Mark Spivakovsky, A new proof of D. Popescu's theorem on smoothing of	
ring homomorphisms	381
Sijue Wu, Well-posedness in Sobolev spaces of the full water wave problem	
in 3-D	445
Martin W. Liebeck and Aner Shalev, Simple groups, permutation	
groups, and probability	497
Brian Conrad, Fred Diamond, and Richard Taylor, Modularity of	
certain potentially Barsotti-Tate Galois representations	521
Alexander Goncharov, Volumes of hyperbolic manifolds and mixed Tate	
motives	569

Vol. 12, No. 3

July 1999

Sérgio R. Fenley, Foliations with good geometry	619
George E. Andrews, Anne Schilling, and S. Ole Warnaar, An A_2	
Bailey lemma and Rogers–Ramanujan-type identities	677

F. Acquistapace, C. Andradas, and F. Broglia, Separation of	
semialgebraic sets	703
Tai-Ping Liu and Tong Yang , L_1 stability for 2×2 systems of hyperbolic	
conservation laws	729
László Lempert, The Dolbeault complex in infinite dimensions II	775
Chad Schoen, On the image of the <i>l</i> -adic Abel-Jacobi map for a variety over	
the algebraic closure of a finite field	795
Detlev W. Hoffmann, Pythagoras numbers of fields	839
David Ginzburg, Stephen Rallis, and David Soudry, On a correspon-	
dence between cuspidal representations of GL_{2n} and $\widetilde{\operatorname{Sp}}_{2n}$	849

Vol. 12, No. 4

October 1999

F. Nazarov, S. Treil, and A. Volberg, The Bellman functions and two-	
weight inequalities for Haar multipliers	909
Bernhard Schmidt, Cyclotomic integers and finite geometry	929
Douglas Lind and Klaus Schmidt, Homoclinic points of algebraic \mathbb{Z}^{d} -	
actions	953
Anthony Carbery, Michael Christ, and James Wright, Multidimen-	
sional van der Corput and sublevel set estimates	981
Ehud Friedgut and an appendix by Jean Bourgain, Sharp thresholds	
of graph properties, and the k-sat problem	1017
Allen Knutson and Terence Tao, The honeycomb model of $GL_n(\mathbb{C})$ tensor	
products I: Proof of the saturation conjecture	1055
Jesper Villadsen, On the stable rank of simple C*-algebras	1091
Martin R. Bridson, Fractional isoperimetric inequalities and subgroup	
distortion	1103
Jinho Baik, Percy Deift, and Kurt Johansson, On the distribution of the	
length of the longest increasing subsequence of random permutations .	1119
Stevo Todorčević, Compact subsets of the first Baire class	1179
Kevin B. Ford, Addendum and corrigendum to "The representation of	
numbers as sums of unlike powers. II"	1213

Editors

Benedict H. Gross Department of Mathematics Harvard University Cambridge, MA 02138-2901 gross@math.harvard.edu

Ingrid Daubechies Department of Mathematics & PACM 218 Fine Hall Princeton University Princeton, NJ 08544-1000 ingrid@math.princeton.edu Bernd Sturmfels Department of Mathematics University of California at Berkeley Berkeley, CA 94720-0001 bernd@math.berkeley.edu

Carlos Kenig Department of Mathematics University of Chicago 5734 University Avenue Chicago, IL 60637-1514 cek@math.uchicago.edu Clifford Taubes Department of Mathematics Harvard University Cambridge, MA 02138-2901 chtaubes@math.harvard.edu

Associate Editors

James G. Arthur, University of Toronto Alexander Beilinson, University of Chicago F. Michael Christ, University of California, Berkeley Constantine M. Dafermos, Brown University Lawrence C. Evans, University of California, Berkeley Michael J. Hopkins, Massachusetts Institute of Technology Ehud Hrushovski, Hebrew University of Jerusalem Henryk Iwaniec, Rutgers University A. J. de Jong, Princeton University Robert Lazarsfeld, University of Michigan Grigorii A. Margulis, Yale University Curtis T. McMullen, Harvard University Marina Ratner, University of California, Berkeley Richard Schoen, Stanford University Richard Stanley, Massachusetts Institute of Technology W. Hugh Woodin, University of California, Berkeley Efim Zelmanov, Yale University

Assistant to the Editorial Board

Laurie Talbo Department of Mathematics University of Chicago Chicago, IL 60637-1514 laurie@math.uchicago.edu

Editorial Information

As of June 30, 1999, the backlog for this journal was approximately 0 issues. This estimate is the result of dividing 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 average number of articles per issue over the previous twelve months, reduced by the number of issues 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 e-Math individually before they appear 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 manuscript has not been submitted to nor is it under consideration for publication by another journal, conference proceedings, or similar publication.

Information for Authors

Initial submission. Two copies of the paper should be sent directly to one of the Editors and the author should keep one copy. *IF an editor is agreeable*, an electronic manuscript prepared in $T_{E}X$ or $I^{A}T_{E}X$ may be submitted by pointing to an appropriate URL on a preprint or e-print server.

The first page must contain a *descriptive title* that is short, but informative; useless or vague phrases such as "some remarks about" or "concerning" should be avoided. Although an abstract is not required upon initial submission, upon acceptance authors will be requested to supply an abstract for the electronic version of this journal. The AMS offers free worldwide access to the electronic abstracts. An abstract should be at least one complete sentence and at most 300 words. No abstracts will appear in the printed journal starting in 1998. Included with the footnotes to the paper, there should be the 1991 Mathematics Subject Classification representing the primary and secondary subjects of the article. This may be followed by a list of key words and phrases describing the subject matter of the article and taken from it. A list of classifications may be found in the annual index of *Mathematical Reviews*, published with the December issue starting in 1990. Journal abbreviations used in bibliographies are also listed in the latest Mathematical Reviews annual index. The classifications and the journal abbreviations are accessible from e-MATH via the World Wide Web through the URL http://www.ams.org/publications/. 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.

Electronically prepared manuscripts. The AMS encourages electronically prepared manuscripts, with a strong preference for \mathcal{AMS} -IATEX. To this end, the Society has prepared \mathcal{AMS} -IATEX author packages for each AMS publication. Author packages include instructions for preparing electronic manuscripts, the \mathcal{AMS} -IATEX author \mathcal{H} and \mathcal{H}

 $\mathcal{A}_{\mathcal{M}}\mathcal{S}$ -IATEX is the highly preferred format of TEX, but author packages are also available in $\mathcal{A}_{\mathcal{M}}\mathcal{S}$ -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 IATEX 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. IAT_EX users will find that A_MS -IAT_EX is the same as IAT_EX with additional commands to simplify the typesetting of mathematics, and users of plain T_EX should have the foundation for learning A_MS -IAT_EX.

Authors may retrieve an author package from e-MATH via the World Wide Web through the URL http://www.ams.org/tex/ or via FTP to ftp.ams.org (login as anonymous and enter username as password). The author package can also be obtained free of charge by sending e-mail to pub@ams.org (Internet) or from the Publication Division, American Mathematical Society, P.O. Box 6248, Providence, RI 02940-6248. When requesting an author package, please specify \mathcal{AMS} -IATEX 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} -IATEX 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 sent via e-mail to pub-submit@ams.org (Internet) or on diskette to the Electronic Prepress Department, American Mathematical Society, P.O. Box 6248, Providence, RI 02940-6248. When sending a manuscript electronically, 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. Figures may be sent to the AMS in an electronic format. The AMS recommends that graphics created electronically be saved in Encapsulated PostScript (EPS) format. This includes graphics originated via a graphics application as well as scanned photographs or other computer-generated images.

If the graphics package used does not support EPS output, the graphics file should be saved in one of the standard graphics formats—such as TIFF, PICT, GIF, etc.—rather than in an application-dependent format. Graphics files sent in an application-dependent format are not likely to be used. 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 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.

T_EX 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*, T_EX files can be downloaded from e-MATH, starting from URL http://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, TFX files are available upon request for authors without Web access by sending e-mail to file-request@ams.org or by contacting the Electronic Prepress Department, American Mathematical Society, P.O. Box 6248, Providence, RI 02940-6248. 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 T_EX file will be sent to the author making the request after the article goes to the printer. If the requestor can receive Internet e-mail, please include the e-mail 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 T_{FX} production at the AMS sometimes requires extra fonts and macros that are not vet publicly available, T_FX files cannot be guaranteed to run through the author's version of T_FX without errors. The AMS regrets that it cannot provide support to eliminate such errors in the author's TFX environment.

Any inquiries concerning a paper that has been accepted for publication should be sent directly to the Electronic Prepress Department, American Mathematical Society, P.O. Box 6248, Providence, RI 02940-6248.

JOURNAL OF THE AMERICAN MATHEMATICAL SOCIETY

CONTENTS

Vol. 12, No. 4

October 1999

F. Nazarov, S. Treil, and A. Volberg, The Bellman functions and two-	000
weight inequalities for maar multipliers	909
Bernhard Schmidt, Cyclotomic integers and finite geometry	929
Douglas Lind and Klaus Schmidt , Homoclinic points of algebraic \mathbb{Z}^{d} -	
actions	953
Anthony Carbery, Michael Christ, and James Wright, Multidimen-	
sional van der Corput and sublevel set estimates	981
Ehud Friedgut and an appendix by Jean Bourgain, Sharp thresholds	
of graph properties, and the k-sat problem	1017
Allen Knutson and Terence Tao, The honeycomb model of $GL_n(\mathbb{C})$ tensor	
products I: Proof of the saturation conjecture	1055
Jesper Villadsen, On the stable rank of simple C*-algebras	1091
Martin R. Bridson, Fractional isoperimetric inequalities and subgroup	
distortion	1103
Jinho Baik, Percy Deift, and Kurt Johansson, On the distribution	
of the length of the longest increasing subsequence of random	
permutations	1119
Stevo Todorčević. Compact subsets of the first Baire class	1179
Kevin B. Ford. Addendum and corrigendum to "The representation of	
numbers as sums of unlike nowers II"	1913
numbers as sums of unince powers. If	1210

