
VOLUME 128 NUMBER 1



JANUARY 2000

WHOLE NUMBER 487

PROCEEDINGS

OF THE

AMERICAN MATHEMATICAL SOCIETY

EDITED BY

Mark J. Ablowitz

Dale Alspach

Albert Baernstein II

Joseph A. Ball

Dan M. Barbasch

Eric Bedford

Steven R. Bell

Jonathan M. Borwein

John A. Burns

Suncica Canic

Bennett Chow

Ralph Cohen

Christopher Croke

Jozef Dodziuk

Alan Dow

Clifford J. Earle, Jr.,

Managing Editor

Ronald A. Fintushel

Ken Goodearl

Michael Handel

Dennis A. Hejhal

Rebecca Herb

Carl G. Jockusch, Jr.

Linda Keen

David R. Larson

Wei Y. Loh

Claudia M. Neuhauser

David Preiss

David E. Rohrlich

Leslie Saper

David Sharp

Lance W. Small

Hal L. Smith

Stephen D. Smith

Christopher D. Sogge

John R. Stembridge

Michael Stillman

David S. Tartakoff

Wolmer V. Vasconcelos

PROVIDENCE, RHODE ISLAND USA

ISSN 0002-9939

Available electronically at
www.ams.org/proc/

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.

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 to e-MATH individually soon after proof is returned from authors and before appearing in an issue.

Subscription information. *Proceedings of the American Mathematical Society* is published monthly. Beginning January 1996 *Proceedings* is accessible from e-MATH via the World Wide Web at the URL <http://www.ams.org/publications/>. Subscription prices for Volume 128 (2000) are as follows: for paper delivery, \$763 list, \$610 institutional member, \$687 corporate member, \$458 individual member; for electronic delivery, \$687 list, \$550 institutional member, \$618 corporate member, \$412 individual member. Upon request, subscribers to paper delivery of this journal are also entitled to receive electronic delivery. If ordering the paper version, add \$25 for surface delivery outside the United States and India; \$49 to India. Expedited delivery to destinations in North America is \$39; elsewhere \$118. 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.)

Proceedings of the American Mathematical Society is published monthly by the American Mathematical Society at 201 Charles Street, Providence, RI 02904-2213. Periodicals postage is paid at Providence, Rhode Island. Postmaster: Send address changes to *Proceedings*, American Mathematical Society, P.O. Box 6248, Providence, RI 02940-6248.

© 2000 by the American Mathematical Society. All rights reserved.

This journal is indexed in *Science Citation Index*[®], *Science Citation Index*[™]-*Expanded*, *ISI Alerting Services*SM, *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.

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 10 published pages. Published pages are the same size as those generated in the style files provided for $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{T}\mathcal{E}\mathcal{X}$ or $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{T}\mathcal{E}\mathcal{X}$.

Very short notes not to exceed two printed pages are also accepted, and appear under the heading SHORTER NOTES. Items deemed suitable include an elegant new proof of an important and well-known theorem, an illuminating example or counterexample, or a new viewpoint on familiar results. New results, if of a brief and striking character, might also be acceptable, though in general a paper which is merely very short will not be suitable for the SHORTER NOTES department.

As of August 31, 1999, the backlog for this journal was approximately 11 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 soon 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 out 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. Two copies of the paper should be sent directly to the appropriate Editor and the author should keep a copy. *IF an editor is agreeable*, an electronic manuscript prepared in $\mathcal{T}\mathcal{E}\mathcal{X}$ or $\mathcal{L}\mathcal{T}\mathcal{E}\mathcal{X}$ may be submitted by pointing to an appropriate URL on a preprint or e-print server.

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 2000 *Mathematics Subject Classification* representing the primary and secondary subjects of the article. The classifications are accessible from <http://www.ams.org/msc>. The list of classifications will also be 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 <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 $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{T}\mathcal{E}\mathcal{X}$. To this end, the Society has prepared $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{T}\mathcal{E}\mathcal{X}$ 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 $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{T}\mathcal{E}\mathcal{X}$ style file automatically provide

hypertext linking to the bibliography and other elements of the article for searching electronically on the World Wide Web. Because linking must often be added manually to electronically prepared manuscripts in other forms of \TeX , using $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ 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. $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ papers also move more efficiently through the production stream, helping to minimize publishing costs.

$\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ is the highly preferred format of \TeX , but author packages are also available in $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{T}\mathcal{E}\mathcal{X}$. 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 $\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ 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. $\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ users will find that $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ is the same as $\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ with additional commands to simplify the typesetting of mathematics, and users of plain \TeX should have the foundation for learning $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$.

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 $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ or $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{T}\mathcal{E}\mathcal{X}$, 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 $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ or $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{T}\mathcal{E}\mathcal{X}$ 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, T_EX 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_EX production at the AMS sometimes requires extra fonts and macros that are not yet publicly available, T_EX files cannot be guaranteed to run through the author's version of T_EX without errors. The AMS regrets that it cannot provide support to eliminate such errors in the author's T_EX 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.

Editors

Authors are requested to send papers directly to the appropriate Editor (the one whose area of responsibility and expertise, as described below, most closely approximates the subject field of the manuscript). Only when in doubt about an appropriate Editor, should manuscripts be sent to the Coordinating Editor responsible for the area in mathematics most closely connected to the paper. If in doubt about the area, send the manuscript to the Managing Editor, to whom all other communication about the journal should also be addressed. (All addresses should include the line “Department of Mathematics”, unless another department is indicated.)

Managing Editor: Clifford J. Earle, Jr., Cornell University, Malott Hall, Ithaca, NY 14853-4201; e-mail: cliff@math.cornell.edu

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

Coordinating Editor: Linda Keen, CUNY-Lehman College, Bronx, NY 10468; e-mail: linda@alpha.lehman.cuny.edu

Partial differential equations, David S. Tartakoff, University of Illinois at Chicago, Chicago, IL 60607; e-mail: dst@uic.edu

Dynamical systems and ergodic theory, Michael Handel, Department of Mathematics and Computer Science, Herbert Lehman College (CUNY), Bronx, NY 10468-1589; e-mail: michael@alpha.lehman.cuny.edu

Ordinary differential equations and special functions, Carmen C. Chicone, University of Missouri, Columbia, MO 65211-0001; e-mail: carmen@chicone.math.missouri.edu

Global analysis, Jozef Dodziuk, Ph.D. Program in Mathematics, Graduate School and University Center (CUNY), 33 West 42nd Street, New York, NY 10036-8099; e-mail: jozek@hodge.gc.cuny.edu

2. LIE GROUPS, TOPOLOGY, AND GEOMETRY

Coordinating Editor: Ronald A. Fintushel, Michigan State University, East Lansing, MI 48824-1027; e-mail: ronfint@math.msu.edu

Topological groups and Lie groups (symmetric spaces), Rebecca Herb, University of Maryland, College Park, MD 20742; e-mail: rah@math.umd.edu

Riemannian geometry (including affine, pseudo-Riemannian, contact, classical, and Lorentzian geometries), Christopher Croke, University of Pennsylvania, Philadelphia, PA 19104-6317; e-mail: ccroke@math.upenn.edu

Geometric analysis (geometric PDE, minimal surfaces and harmonic maps), Bennett Chow, School of Mathematics, University of Minnesota, Minneapolis, MN 55455; e-mail: bchow@math.umn.edu

Algebraic topology, Ralph Cohen, Stanford University, Stanford, CA 94305-2125; e-mail: ralph@math.stanford.edu

Set-theoretic and general topology, Alan Dow, York University, North York, Ontario, Canada M3J 1P3; e-mail: dowa@mathstat.yorku.ca

Low dimensional topology, gauge theory, 4-manifolds, Ronald A. Fintushel

Complex and Kähler geometry, Leslie Saper, Duke University, Durham, NC 27708-0320; e-mail: saper@math.duke.edu

3. ANALYSIS AND OPERATOR THEORY

Coordinating Editor: Eric Bedford, Indiana University, Bloomington, IN 47405-5701; e-mail: BEDFORD@ucs.indiana.edu

One complex variable and potential theory, Albert Baernstein II, Washington University, St. Louis, MO 63130-4899; e-mail: al@math.wustl.edu

Several complex variables, Steven R. Bell, Purdue University, West Lafayette, IN 47907-1395; e-mail: bell@math.purdue.edu

Linear and nonlinear functional analysis, Jonathan M. Borwein, Department of Mathematics and Statistics, Simon Fraser University, Burnaby, BC, Canada V5A 1S6; e-mail: jborwein@cecm.sfu.ca

Banach spaces and linear functional analysis, Dale Alspach, Oklahoma State University, Stillwater, OK 74078-0613; e-mail: alspach@math.okstate.edu

Operator Theory, Joseph A. Ball, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061; e-mail: ball@math.vt.edu

Operator algebras and wavelets, David R. Larson, Texas A&M University, College Station, TX 77843-3368; e-mail: larson@math.tamu.edu

Geometric measure theory and classical real analysis, David Preiss, University College London, Gower Street, London WC1E 6BT, UK; e-mail: d.preiss@ucl.ac.uk

Harmonic analysis, Christopher D. Sogge, Johns Hopkins University, Baltimore, MD 21218; e-mail: sogge@math.jhu.edu

Analytic number theory and automorphic forms, Dennis A. Hejhal, School of Mathematics, University of Minnesota, Minneapolis, MN 55455-0488; e-mail: hejhal@math.umn.edu

4. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Coordinating Editor: Lance W. Small, University of California San Diego, La Jolla, CA 92093-0112; e-mail: lwsma1@ucsd.edu

General number theory, David E. Rohrlich, Boston University, Boston, MA 02215-2411; e-mail: rohrlich@math.bu.edu

General algebra, Lance W. Small

Commutative algebra, Wolmer V. Vasconcelos, Rutgers University, New Brunswick, NJ 08903-2101; e-mail: vasconce@math.rutgers.edu

Group theory, Stephen D. Smith, University of Illinois at Chicago, Chicago, IL 60607; e-mail: smiths@math.uic.edu

Algebraic geometry, Michael Stillman, Cornell University, Malott Hall, Ithaca, NY 14853-4201; e-mail: mike@math.cornell.edu

Combinatorics, John R. Stembridge, University of Michigan, Ann Arbor, MI 48109-1109; e-mail: jrs@math.lsa.umich.edu

Analytic number theory and automorphic forms, Dennis A. Hejhal, School of Mathematics, University of Minnesota, Minneapolis, MN 55455-0488; e-mail: hejhal@math.umn.edu

Logic and foundations, Carl G. Jockusch, Jr., University of Illinois, 1409 W. Green St., Urbana, IL 61801-2917; e-mail: jockusch@math.uiuc.edu

Lie algebras, Dan M. Barbasch, Cornell University, Malott Hall, Ithaca, NY 14853-4201; e-mail: barbasch@math.cornell.edu

Noncommutative rings, Ken Goodearl, University of California, Santa Barbara, CA 93106; e-mail: goodearl@math.ucsb.edu

5. APPLIED MATHEMATICS, PROBABILITY, AND STATISTICS

Coordinating Editor: Mark J. Ablowitz, Department of Applied Mathematics, Campus Box 526, University of Colorado, Boulder, CO 80309-0526; e-mail: markjab@newton.colorado.edu

Probability, Claudia M. Neuhäuser, School of Mathematics, University of Minnesota, Minneapolis, MN 55455; e-mail: nhauser@math.umn.edu

Statistics, Wei Y. Loh, Department of Statistics, University of Wisconsin, Madison, WI 53706-1693; e-mail: loh@stat.wisc.edu

Applied mathematics, David Sharp, Theoretic Division, Los Alamos National Laboratory MSB285, Los Alamos, NM 87545; e-mail: dhs@lanl.gov

Control theory, John A. Burns, Interdisciplinary Center for Applied Mathematics,
Virginia Polytech Institute, Blacksburg, VA 24061-0531; e-mail: burnsreg@vtvm1.cc.vt.edu

Hyperbolic partial differential equations, Suncica Canic, University of Houston,
Houston, TX 77204-3476; e-mail: canic@math.uh.edu

(Continued from back cover)

Hiroaki Aikawa , Integrability of superharmonic functions in a John domain	195
Aicke Hinrichs , Rademacher and Gaussian averages and Rademacher cotype of operators between Banach spaces	203
Jonathan M. Borwein and Warren B. Moors , Separable determination of integrability and minimality of the Clarke subdifferential mapping	215
Masatoshi Fujii and Ritsuo Nakamoto , Extensions of Heinz-Kato-Furuta inequality	223
Bryan P. Rynne , Oscillating global continua of positive solutions of semilinear elliptic problems	229

C. APPLIED MATHEMATICS

Mark J. Gotay, Janusz Grabowski, and Hendrik B. Grundling , An obstruction to quantizing compact symplectic manifolds	237
----------------------------------------------------------------------------------------------------------------------------------------	-----

D. GEOMETRY

Novica Blažić, Neda Bokan, and Zoran Rakić , A note on the Osserman conjecture and isotropic covariant derivative of curvature	245
A. N. Dranishnikov , An infinite family of manifolds with bounded total curvature	255

F. STATISTICS AND PROBABILITY

Elizabeth Housworth and Qi-Man Shao , On central limit theorems for shrunken random variables	261
----------------------------------------------------------------------------------------------------------------	-----

G. TOPOLOGY

Kanji Morimoto and Jennifer Schultens , Tunnel numbers of small knots do not go down under connected sum	269
W. T. Ingram , Inverse limits on $[0, 1]$ using piecewise linear unimodal bonding maps	279
Mikhail G. Tkačenko, Vladimir V. Tkachuk, Richard G. Wilson, and Ivan V. Yaschenko , No submaximal topology on a countable set is T_1 -complementary	287
Satya Deo and Jitendra Kumar Maitra , Free actions of finite groups on products of symmetric powers of even spheres	299
Zhi Lü , Involutions with $W(F) = 1$	307

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Mohamed Elhamdadi, A note on λ -operations in orthogonal K-theory 1
 P. R. Fuchs, On modules which force homogeneous maps to be linear 5
 Jason Fulman, The Rogers-Ramanujan identities, the finite general linear groups,
 and the Hall-Littlewood polynomials 17
 Arne Ledet, On a theorem by Serre 27
 James K. Deveney and David R. Finston, Free G_a actions on C^3 31
 Shlomo Gelaki and Sara Westreich, On semisimple Hopf algebras of dimension
 pq 39
 John Cossey and Trevor Hawkes, Sets of p -powers as conjugacy class sizes .. 49

B. ANALYSIS

G. Alessandrini, E. Rosset, and J. K. Seo, Optimal size estimates for the
 inverse conductivity problem with one measurement 53
 Jesús Bastero, Mario Milman, and Francisco J. Ruiz, Rearrangement of
 Hardy-Littlewood maximal functions in Lorentz spaces 65
 Guozhen Lu and Juncheng Wei, On a Sobolev inequality with remainder
 terms 75
 D. H. Armitage, Reflection and uniqueness theorems for harmonic functions ... 85
 Lajos Molnár and Borut Zalar, On local automorphisms of group algebras of
 compact groups 93
 Santiago Díaz, A local approach to functionals on $L^\infty(\mu, X)$ 101
 G. A. Willis, An extension of a non-commutative Choquet-Deny theorem 111
 Jin Kyu Han, Hong Youl Lee, and Woo Young Lee, Invertible completions
 of 2×2 upper triangular operator matrices 119
 Lajos Molnár, Automatic surjectivity of ring homomorphisms on H^* -algebras and
 algebraic differences among some group algebras of compact groups 125
 Shen Yu-Liang, On the extremality of quasiconformal mappings and quasiconfor-
 mal deformations 135
 Horst Alzer, Inequalities for the gamma function 141
 Pablo Galindo, Mikael Lindström, and Ray Ryan, Weakly compact
 composition operators between algebras of bounded analytic functions 149
 Gerd Herzog and Roland Lemmert, An existence theorem for systems of
 boundary value problems 157
 Christian Remling, Bounds on embedded singular spectrum for one-dimensional
 Schrödinger operators 161
 Laura Burlando, Noncontinuity of spectrum for the adjoint of an operator 173
 Christopher Hoffman, A zero entropy T such that the $[T, Id]$ endomorphism is
 nonstandard 183
 Joe Kamimoto, Haseo Ki, and Young-One Kim, On the multiplicities of the
 zeros of Laguerre-Pólya functions 189

(Continued on inside back cover)



0002-9939(200001)128:1;1-Z