In Memoriam

It is with great sadness that we note the passing of Oded Schramm, who died on September 1, 2008, in a hiking accident. Oded had been an editor of the Journal of the American Mathematical Society since late 2007. Even in this short time, the Journal profited greatly from his mathematical vision and editorial wisdom.

Oded was born in Israel in 1961 and obtained his Ph.D. from Princeton in 1990 under the direction of William Thurston. He held positions at the University of California, San Diego, the Weizmann Institute, and (since 1999) at Microsoft.

Oded’s initial research focused on packing problems but soon branched out to encompass percolation and other random structures, conformal geometry, and property testing. His most celebrated achievement is the discovery of the Schramm-Loewner equation in 2000, a stochastic equation that governs the behavior of a wide variety of random processes, such as the loop-erased random walk, the Brownian frontier, and percolation on the triangular lattice. Exploring the further connections of this equation to other random processes and to conformal field theory remains a major area of active research. For this and other work, Oded was honored with numerous awards, including the Salem, Loéve, Poincaré, Pólya, and Ostrowski prizes, the Clay Research Award, and a foreign membership in the Royal Swedish Academy of Sciences.

Oded is survived by his wife Avivit and two children.
David L. Donoho and Jared Tanner, Counting faces of randomly projected polytopes when the projection radically lowers dimension . . 1
Sergei Treil and Brett D. Wick, Analytic projections, Corona problem and geometry of holomorphic vector bundles ....................... 55
John Hubbard, Dierk Schleicher, and Mitsuhiro Shishikura, Exponential Thurston maps and limits of quadratic differentials ...... 77
Paweł Idziak, Ralph McKenzie, and Matthew Valeriote, The structure of locally finite varieties with polynomially many models .......... 119
Yuval Peres, Oded Schramm, Scott Sheffield, and David B. Wilson, Tug-of-war and the infinity Laplacian ................................. 167
Albert Cohen, Wolfgang Dahmen, and Ronald DeVore, Compressed sensing and best $k$-term approximation .......................... 211
David Nadler and Eric Zaslow, Constructible sheaves and the Fukaya category ................................................................. 233
Simon Brendle and Richard Schoen, Manifolds with $1/4$-pinched curvature are space forms ................................................. 287
Editors

Weinan E
Department of Mathematics
Fine Hall
Princeton University
Princeton, NJ 08544 USA
weinan@math.princeton.edu

Robert Lazarsfeld
Department of Mathematics
University of Michigan
Ann Arbor, MI 48109-1109 USA
rlaz@umich.edu

John W. Morgan
Department of Mathematics
Columbia University
2990 Broadway
New York, NY 10027-0029 USA
jm@math.columbia.edu

Karl Rubin
Department of Mathematics
University of California, Irvine
Irvine, CA 92697-3875 USA
krubin@math.uci.edu

Terence Tao
Department of Mathematics
University of California, Los Angeles
405 Hilgard Avenue
Los Angeles, CA 90095-1555 USA
tao@math.ucla.edu

Associate Editors

Noga Alon, Tel Aviv University, Israel
Francis Bonahon, University of Southern California
Alexei Borodin, California Institute of Technology
Robert L. Bryant, Duke University
Emmanuel Candes, California Institute of Technology
Pavel I. Etingof, Massachusetts Institute of Technology
Mark Goresky, Institute for Advanced Study, Princeton
Alexander S. Kechris, California Institute of Technology
Robert Edward Kottwitz, University of Chicago
Peter Kronheimer, Harvard University
Elon Lindenstrauss, Princeton University
Haynes R. Miller, Massachusetts Institute of Technology
Assaf Naor, New York University, Courant Institute
Andrew M. Odlyzko, University of Minnesota
Bjorn Poonen, University of California, Berkeley
Sorin T. Popa, University of California, Los Angeles
Victor S. Reiner, University of Minnesota, Minneapolis
Richard L. Taylor, Harvard University
Avi Wigderson, Institute for Advanced Study, Princeton
Lai-Sang Young, New York University–Courant Institute

Assistant to the Editorial Board

Cheryl A. Cantore
Princeton University
133 East Pyne
Princeton, NJ 08544 USA
cheryl@princeton.edu

Editorial Information

Information on the backlog for this journal can be found on the AMS website starting from http://www.ams.org/jams.
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 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. 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/peer-review-submission or should send one copy of the manuscript to the following address: Centralized Manuscript Processing, JOURNAL OF THE AMS, 201 Charles Street, Providence, RI 02904-2294 USA. If a paper copy is being forwarded to the AMS, indicate that it is for the Journal of the AMS 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 above).

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 appear in the printed journal starting in 1998. 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 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/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. The AMS encourages electronically prepared manuscripts, with a strong preference for \LaTeX. To this end, the Society has prepared \LaTeX 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 \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 \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. \LaTeX papers also move more efficiently through the production stream, helping to minimize publishing costs. \LaTeX is the highly preferred format of \TeX, but author packages are also available in \LaTeX. 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 \TeX 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. \TeX users will find that \LaTeX is the same as \TeX with additional
commands to simplify the typesetting of mathematics, and users of plain \TeX should have
the foundation for learning \texttt{AMSL-\LaTeX}.

Authors may retrieve an author package for \textit{Journal of the AMS} starting from
\url{www.ams.org/jams/jamsauthorpac.html} or via FTP to \url{ftp.ams.org} (login as anonymous,
enter username as password, and type \texttt{cd pub/author-info}). The \textit{AMS Author Hand-
book} and the \textit{Instruction Manual} are available in PDF format from the author pack-
age link. The author package can also be obtained free of charge by sending email to
tech-support@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 \texttt{AMSL-\LaTeX} or \texttt{AMSTeX} and the publication in
which your paper will appear. Please be sure to include your complete email address.

\textbf{After acceptance.} The final version of the electronic manuscript should be sent to the
Providence office immediately after the paper has been accepted for publication. The au-
thor should also send 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 \url{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 Math-
ematical 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 indi-
cating 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.

\textbf{Electronic graphics.} Comprehensive instructions on preparing graphics are available
from \url{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. 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. Variations of screens within a graphic
should be no less than 10%.

\textbf{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. 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. 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 jams-query@ams.org.

**TeX files available upon request.** TeX files are available upon request for authors 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 jams-query@ams.org or directly to the Electronic Prepress Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA.
JOURNAL OF THE AMERICAN MATHEMATICAL SOCIETY
CONTENTS
Vol. 22, No. 1 January 2009

David L. Donoho and Jared Tanner, Counting faces of randomly projected polytopes when the projection radically lowers dimension . . 1
Sergei Treil and Brett D. Wick, Analytic projections, Corona problem and geometry of holomorphic vector bundles ...................... 55
John Hubbard, Dierk Schleicher, and Mitsuhiro Shishikura, Exponential Thurston maps and limits of quadratic differentials ...... 77
Pawel Idziak, Ralph McKenzie, and Matthew Valeriote, The structure of locally finite varieties with polynomially many models ........ 119
Yuval Peres, Oded Schramm, Scott Sheffield, and David B. Wilson, Tug-of-war and the infinity Laplacian ................................. 167
Albert Cohen, Wolfgang Dahmen, and Ronald DeVore, Compressed sensing and best k-term approximation .......................... 211
David Nadler and Eric Zaslow, Constructible sheaves and the Fukaya category ................................................................. 233
Simon Brendle and Richard Schoen, Manifolds with 1/4-pinched curvature are space forms ................................................... 287