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# Reference and Book List

The *Reference* section of the *Notices* is intended to provide the reader with frequently sought information in an easily accessible manner. New information is printed as it becomes available and is referenced after the first printing. As soon as information is updated or otherwise changed, it will be noted in this section.

## Contacting the *Notices*

The preferred method for contacting the *Notices* is electronic mail. The editor is the person to whom to send articles and letters for consideration. Articles include feature articles, memorial articles, communications, opinion pieces, and book reviews. The editor is also the person to whom to send news of unusual interest about other people's mathematics research.

The managing editor is the person to whom to send items for "Mathematics People", "Mathematics Opportunities", "For Your Information", "Reference and Book List", and "Mathematics Calendar". Requests for permissions, as well as all other inquiries, go to the managing editor.

The electronic-mail addresses are [notices@math.ou.edu](mailto:notices@math.ou.edu) in the case of the editor and [notices@ams.org](mailto:notices@ams.org) in the case of the managing editor. The fax numbers are 405-325-7484 for the editor and 401-331-3842 for the managing editor. Postal addresses may be found in the masthead.

## Information for *Notices* Authors

The *Notices* welcomes unsolicited articles for consideration for publication, as well as proposals for such articles. The following provides general guidelines for writing *Notices* articles and preparing them for submission.

**Notices readership.** The *Notices* goes to about 30,000 subscribers worldwide, of whom about 20,000 are in North America. Approximately 8,000 of the 20,000 in North America are graduate students who have com-

pleted at least one year of graduate school. All readers may be assumed to be interested in mathematics research, but they are not all active researchers.

**Notices feature articles.** Feature articles may address mathematics, mathematical news and developments, mathematics history, issues affecting the profession, mathematics education at any level, the AMS and its activities, and other such topics of interest to *Notices* readers. Each

### Where to Find It

A brief index to information that appears in this and previous issues.

**AMS Bylaws**—November 2003, p. 1283

**AMS Email Addresses**—November 2003, p. 1266

**AMS Ethical Guidelines**—June/July 2004, p. 675

**AMS Officers 2002 and 2003 (Council, Executive Committee, Publications Committees, Board of Trustees)**—May 2004, p. 566

**AMS Officers and Committee Members**—October 2003, p. 1115

**Backlog of Mathematics Research Journals**—September 2003, p. 961

**Conference Board of the Mathematical Sciences**—September 2003, p. 945

**Information for *Notices* Authors**—June/July 2004, p. 670

**Mathematics Research Institutes Contact Information**—August 2003, p. 821

**National Science Board**—January 2004, p. 54

**New Journals for 2003**—June/July 2004, p. 672

**NRC Board on Mathematical Sciences and Their Applications**—March 2004, p. 350

**NRC Mathematical Sciences Education Board**—April 2004, p. 446

**NSF Mathematical and Physical Sciences Advisory Committee**—February 2004, p. 242

**Program Officers for Federal Funding Agencies**—October 2003, p. 1107 (DoD, DoE); December 2003, p. 1429 (DMS Program Officers); December 2003, p. 1430 (NSF Education Program Officers)

article is expected to have a large target audience of readers, perhaps 5,000 of the 30,000 subscribers. Authors must therefore write their articles for nonexperts rather than for experts or would-be experts. In particular, the mathematics articles in the *Notices* is expository. The language of the *Notices* is English.

Most feature articles, including those on mathematics, are expected to be of long-term value and should be written as such. Ideally each article should put its topic in a context, providing some history and other orientation for the reader and, as necessary, relating the subject matter to things that readers are likely to understand. In most cases, articles should progress to dealing with contemporary matters, not giving only historical material. The articles that are received the best by readers tend to relate different areas of mathematics to each other.

By design the *Notices* is partly magazine and partly journal, and authors' expository styles should take this into account. For example, many readers want to understand the mathematics articles without undue effort and without consulting other sources.

Mathematics feature articles in the *Notices* are normally six to nine pages, sometimes a little longer. Shorter articles are more likely to be read fully than are longer articles. The first page is 400 or 500 words, and subsequent pages are about 800 words. From this one should subtract an allowance for figures, photos, and other illustrations, and an appropriate allowance for any displayed equations and any bibliography.

**Form of articles.** Except with very short articles, authors are encouraged to use section headings and subsection headings to help orient readers. Normally there is no section heading at the beginning of an article. Despite the encouraged use of internal headings, the assigning of numbers to sections and subsections is not permitted in any article.

The bibliography should be kept short. In the case of mathematics articles, bibliographies are normally limited to about ten items and should consist primarily of entries like books

in which one may do further reading. To help readers who might want lists of recent literature, an author might include a small number of recent publications with good bibliographies.

**Editing process.** Most articles that are destined to be accepted undergo an intensive editing process. The purposes of this process are to ensure that the target audience is as large as practicable, that the content of the article is clear and unambiguous, and that the article is relatively easy to read. Usually it is the members of the editorial board who are involved in this process. Sometimes outside referees are consulted.

**Preparation of articles for submission.** The preferred form for submitted articles is as electronic files. Authors who cannot send articles electronically may send the articles by fax or by postal mail.

Articles with a significant number of mathematical symbols are best prepared in  $\text{T}_{\text{E}}\text{X}$ ,  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ , or  $\mathcal{A}\mathcal{M}\mathcal{S}\text{-T}_{\text{E}}\text{X}$ . There are no special style files for the *Notices*, because  $\text{T}_{\text{E}}\text{X}$  code gets converted to something else during the production process. Since the *Notices* is set in narrow columns, keeping displayed formulas relatively short helps to minimize adjustments during the production process; avoiding non-standard supplementary files and complex sequences of  $\text{T}_{\text{E}}\text{X}$  definitions also helps. For the handling of figures and other illustrations, please consult the editor.

Articles without a significant number of mathematical symbols may be prepared as text files or in Microsoft Word. In the case of files prepared in Microsoft Word, it is advisable to send both the file and a fax of a printout.

### Instructions for Authors of "WHAT IS...?" Columns

The purpose of the "WHAT IS...?" column is to provide brief, nontechnical descriptions of mathematical objects in use in current research. The target audience for the columns is first-year graduate students.

Each "WHAT IS...?" column provides an expository description of a single mathematical object being used in contemporary research. Thus "WHAT IS M-Theory?" would be too

broad, but "WHAT IS a Brane?" would be appropriate; ideally, "WHAT IS a Brane?" would give a flavor of what M-theory is.

The writing should be nontechnical and informal. The level should be a little higher than the level of popular articles about mathematical developments one finds in magazines like *Science* that are aimed at a general audience.

There is a strict limit of two *Notices* pages (1,400 words with no picture, or 1,200 words with one picture). A list of "Further Reading" should contain no more than three references.

Inquiries and comments about the "WHAT IS...?" column are welcome and may be sent to [notices-what-is@ams.org](mailto:notices-what-is@ams.org).

### Upcoming Deadlines

**June 30, 2004:** Full proposals for Joint DMS/BIO/NIGMS Initiative to Support Research in the Area of Mathematical Biology. See "Mathematics Opportunities" in this issue.

**June 30, 2004:** Proposals for DMS/NIGMS Program in Mathematical Biology. See <http://www.nsf.gov/pubs/2002/nsf02125/nsf02125.htm>.

**July 22, 2004:** Proposals for NSF CAREER Program. See "Mathematics Opportunities" in this issue.

**August 1, 2004:** Nominations for Clay Senior Scholars Program. See "Mathematics Opportunities" in this issue.

**August 1, 2004:** Applications for National Research Council Research Associateships. See <http://www4.nationalacademies.org/pgs/rap.nsf>, or contact Research Associateship Programs, Keck Center of the National Academies, 500 Fifth Street, NW, GR322A, Washington, DC 20001; telephone 202-334-2760; fax 202-334-2759; email: [rap@nas.edu](mailto:rap@nas.edu).

**September 15, 2004:** Nominations for Alfred P. Sloan Foundation fellowships. See "Mathematics Opportunities" in this issue.

**September 16, 2004:** Proposals for NSF Enhancing the Mathematical Sciences Workforce in the Twenty-First Century program (including VIGRE). See the website <http://www.nsf.gov/pubs/2003/nsf03575/nsf03575.htm>.

**September 30, 2004:** Nominations for Information-Based Complexity Young Researcher Award. Contact Joseph F. Traub at [traub@cs.columbia.edu](mailto:traub@cs.columbia.edu).

**October 1, 2004:** Nominations for the Louise Hay Award and the Alice T. Schafer Mathematics Prize. See "Mathematics Opportunities" in this issue.

**October 1, 2004:** Nominations for CRM-Fields Prize. See [http://www.fields.utoronto.ca/proposals/crm-fields\\_prize.html](http://www.fields.utoronto.ca/proposals/crm-fields_prize.html), or contact the Director, The Fields Institute, 222 College Street, Toronto, Ontario M5T 3J1, Canada.

**October 15, 2004:** Applications for NSF Postdoctoral Research Fellowships. See <http://www.nsf.gov/pubs/2001/nsf01126/nsf01126.htm>.

**January 1, 2005:** Entries for *Cryptologia* undergraduate paper competitions. See <http://www.dean.usma.edu/math/pubs/cryptologia/> or contact *Cryptologia*, Department of Mathematical Sciences, United States Military Academy, West Point, NY 10996; email [Cryptologia@usma.edu](mailto:Cryptologia@usma.edu).

**New Journals for 2003**

Below is a list of mathematical journals appearing for the first time in 2003, as compiled by *Mathematical Reviews*. This list, as well as the listings for new journals for other years, can be found on the Web at <http://www.ams.org/mathweb/mi-newjs.html>.

*Analysis and Applications*, 0219-5305, World Scientific Publishing, \$240/4 issues/yr.

*Applied Mathematics Research eXpress*, 1687-1200, Hindawi Publishing Corp., \$195/8+ issues/yr.

*Archives of Inequalities and Applications*, 1542-6149, Dynamic Publishers, Atlanta, \$300/4 issues/yr.

*Australasian Journal of Logic*, 1448-5052, Philosophy Department, University of Melbourne, Parkville, free of charge.

*Central European Journal of Mathematics*, 1644-3616, Central European Science Journals, Warsaw, \$670/4 issues/yr.

*Communications in Mathematical Sciences*, International Press, \$195/yr.

*Journal of Function Spaces and Applications*, 0972-6802, Scientific Horizon, Delhi, \$120/3 issues/yr.

*Mathematica Macedonia*, St. Cyril Methodius Univ., Skopje, price not listed, 1 vol./yr.

*Multiscale Modeling and Simulation*, 1540-3459, Society for Industrial and Applied Mathematics, \$300/4 issues/yr.

*Thai Journal of Mathematics*, 1686-0209, Mathematical Assoc. of Thailand, price not listed, 2 issues/yr.



**Book List**

*The Book List highlights books that have mathematical themes and are aimed at a broad audience potentially including mathematicians, students, and the general public. When a book has been reviewed in the Notices, a reference is given to the review. Generally the list will contain only books published within the last two years, though exceptions may be made in cases where current events (e.g., the death of a prominent mathematician, coverage of a certain piece of mathematics in the news) warrant drawing readers' attention to older books. Suggestions for books to include on the list may be sent to [notices-booklist@ams.org](mailto:notices-booklist@ams.org).*

\*Added to "Book List" since the list's last appearance.

*Abel's Proof: An Essay on the Sources and Meaning of Mathematical Unsolvability*, by Peter Pesic. MIT Press, May 2003. ISBN 0-262-16216-4. (Reviewed March 2004.)

\* *Across the Board: The Mathematics of Chessboard Problems*, by John J. Watkins. Princeton University Press, April 2004. ISBN 0-691-11503-6.

\* *Adam Spencer's Book of Numbers*, by Adam Spencer. Four Walls Eight Windows, January 2004. ISBN 1-568-58289-7.

*After Math*, by Miriam Webster. Zinka Press, June 1997. ISBN 0-9647-1711-5. (Reviewed October 2003.)

*Alan Turing: Life and Legacy of a Great Thinker*, edited by Christof Teuscher. Springer, 2004. ISBN 3-540-20020-7.

\* *Alpha & Omega: The Search for the Beginning and End of the Universe*, by Charles Seife. Viking, July 2003. ISBN 0-670-03179-8.

\* *Automated Reasoning and the Discovery of Missing and Elegant Proofs*, by Larry Wos and Gail Pieper. Rinton Press, December 2003. ISBN 1-58949-023-1.

*Beyond the Limit: The Dream of Sofya Kovalevskaya*, by Joan Spicci. Forge, August 2002. ISBN 0-765-30233-0. (Reviewed January 2004.)

*The Book of My Life*, by Girolamo Cardano. New York Review of Books Classics Series/Granta. ISBN 1-590-17016-4.

*Calculated Risks: How to Know When Numbers Deceive You*, by Gerd Gigerenzer. Simon & Schuster, March 2003. ISBN 0-743-25423-6.

*California Dreaming: Reforming Mathematics Education*, by Suzanne M. Wilson. Yale University Press, January 2003. ISBN 0-300-09432-9. (Reviewed November 2003.)

*The Changing Shape of Geometry: Celebrating a Century of Geometry and Geometry Teaching*, edited by Chris Pritchard. Cambridge University Press, January 2003. ISBN 0-521-53162-4.

*Codebreakers: Arne Beurling and the Swedish Crypto Program during World War II*, by Bengt Beckman, translated by Kjell-Ove Widman. AMS, February 2003. ISBN 0-8218-2889-4. (Reviewed September 2003.)

*The Constants of Nature: From Alpha to Omega—the Numbers That Encode the Deepest Secrets of the Universe*, by John D. Barrow. Jonathan Cape, September 2002. Pantheon Books, January 2003. ISBN 0-375-42221-8.

*Corr spondance Grothendieck-Serre*, Pierre Colmez and Jean-Pierre Serre, editors. Soci t  Math matique

de France, 2001. ISBN 2-85629-104-X. (Reviewed October 2003.)

\* *The Curious Life of Robert Hooke, the Man Who Measured London*, by Lisa Jardine. HarperCollins, February 2004. ISBN 0-060-53897-X.

*Einstein's Clocks, Poincaré's Maps: Empires of Time*, by Peter Galison. W. W. Norton & Company, August 2003. ISBN 0-393-02001-0.

*Everything and More: A Compact History of Infinity*, by David Foster Wallace. W. W. Norton, October 2003. ISBN 0-393-00338-8. (Reviewed in this issue.)

\* *Fields Medalists' Lectures*, edited by Sir Michael Atiyah and Daniel Iagolnitzer. World Scientific, 2nd edition, December 2003. ISBN 9-812-38259-3.

*Four Colors Suffice: How the Map Problem Was Solved*, by Robin Wilson. Princeton University Press, March 2003. ISBN 0-691-11533-8. (Reviewed in February 2004.)

*The Fractal Murders*, by Mark Cohen. Mysterious Press, Warner Books, May 2004. ISBN 0-89296-799-4. (Reviewed October 2003.)

\* *Galois' Theory of Algebraic Equations*, by Jean-Pierre Tignol. World Scientific Publishing. ISBN 981-02-4541-6.

*Gamma: Exploring Euler's Constant*, by Julian Havil. Princeton University Press, May 2003. ISBN 0-691-09983-9.

*Geometrical Landscapes: The Voyages of Discovery and the Transformation of Mathematical Practice*, by Amir R. Alexander. Stanford University Press, September 2002. ISBN 0-804-73260-4.

*Geometry: Our Cultural Heritage*, by Audun Holme. Springer, April 2002. ISBN 3-540-41949-7. (Reviewed May 2004.)

*Gödel's Proof*, by Ernest Nagel and James R. Newman. New York University Press, revised edition, February 2002. ISBN 0-8147-5816-9. (Reviewed March 2004.)

*The Golden Ratio: The Story of Phi, the World's Most Astonishing Number*, by Mario Livio. Broadway Books, October 2002. ISBN 0-767-90815-5.

\* *A Handbook of Mathematical Discourse*, by Charles Wells. Infinity Publishing Company, 2003. ISBN 0-7414-1685-9.

*How Economics Became a Mathematical Science*, by E. Roy Weintraub. Duke University Press, June 2002. ISBN 0-822-32856-9.

*Imagining Numbers (particularly the square root of minus fifteen)*, by Barry Mazur. Farrar, Straus and Giroux, February 2003. ISBN 0-374-17469-5. (Reviewed November 2003.)

*Infinity: The Quest to Think the Unthinkable*, by Brian Clegg. Carroll & Graf, December 2003. ISBN 0-786-71285-6.

*Information: The New Language of Science*, by Hans Christian von Baeyer. Weidenfeld & Nicolson, October 2003. ISBN 0-297-60725-1 (hardcover), 0-753-81782-9 (paperback).

*Isaac Newton*, by James Gleick. Pantheon Books, May 2003. ISBN 0-375-42233-1. (Reviewed December 2003.)

*Kepler's Conjecture: How Some of the Greatest Minds in History Helped Solve One of the Oldest Math Problems in the World*, by George G. Szpiro. John Wiley & Sons, January 2003. ISBN 0-471-08601-0.

*Linked: The New Science of Networks*, by Albert-László Barabási. Perseus Publishing, May 2002. ISBN 0-738-20667-9. (Reviewed February 2004.)

*Math through the Ages: A Gentle History for Teachers and Others*, by William P. Berlinghoff and Fernando Q. Gouvêa. Oxtan House, 2002. ISBN 1-881929-21-3.

*Mathematical Constants*, by Steven R. Finch. Cambridge University Press, August 2003. ISBN 0-521-81805-2.

\* *Mathematical Journeys*, by Peter D. Schumer. Wiley-Interscience, February 2004. ISBN 0-471-22066-3.

*A Mathematician's Survival Guide: Graduate School and Early Career Development*, by Steven G. Krantz. AMS, August 2003. ISBN 0-821-83455-X. (Reviewed April 2004.)

*Mathematicians under the Nazis*, by Sanford L. Segal. Princeton University Press, July 2003. ISBN 0-691-00451-X.

*Mathematics and Culture I*, edited by Michele Emmer. Springer, January 2004. ISBN 3-540-01770-4.

*Mathematics and the Roots of Post-modern Thought*, by Vladimir Tasić. Oxford University Press, 2001. ISBN 0-195-13967-4. (Reviewed August 2003.)

\* *Mathematics and War*, by Bernhelm Booss-Bavnbek and Jens Høyrup, editors. Birkhäuser, December 2003. ISBN 3-764-31634-9.

*Mathematics, Art, Technology, and Cinema*, edited by Michele Emmer and Mirella Manaresi. Springer, 2003. ISBN 3-540-00601-X.

*Mathematics by Experiment: Plausible Reasoning in the 21st Century*, by David Bailey, Jonathan Borwein. A K Peters, September 2003. ISBN 1-568-81136-5.

*Mathematics for the Imagination*, by Peter M. Higgins. Oxford University Press, November 2002. ISBN 0-198-60460-2.

\* *Mathematics in Nature: Modeling Patterns in the Natural World*, by John Adam. Princeton University Press, November 2003. ISBN 0-691-11429-3.

*The Mathematics of Juggling*, by Burkard Polster. Springer, November 2002. ISBN 0-387-95513-5. (Reviewed January 2004.)

*Memoirs of a Proof Theorist: Gödel and Other Logicians*, by Gaisi Takeuti. Translated by Mariko Yasugi and Nicholas Passell. World Scientific, February 2003. ISBN 981-238-279-8.

\* *Meta Math! The Quest for Omega*, by Gregory J. Chaitin. April 2004. Available at <http://www.cs.umaine.edu/~chaitin/omega.html>.

*The Millennium Problems: The Seven Greatest Unsolved Mathematical Puzzles of Our Time*, by Keith J. Devlin. Basic Books, October 2002. ISBN 0-465-01729-0. (Reviewed September 2003.)

*More Mathematical Astronomy Morsels*, by Jean Meeus. Willmann-Bell Inc., 2002. ISBN 0-943396-743.

*The Music of the Primes: Searching to Solve the Greatest Mystery in Mathematics*, by Marcus Du Sautoy. HarperCollins, April 2003. ISBN 0-066-21070-4.

*Newton's Apple: Isaac Newton and the English Scientific Renaissance*, by Peter Aughton. Weidenfeld & Nicolson, October 2003. ISBN 0-297-84321-4.

*The Number  $\pi$* , by Pierre Eymard and Jean-Pierre Lafon. AMS, 2004. ISBN 0-8218-3246-8.

*On the Nature of Human Romantic Interaction*, by Karl Iagnemma. Dial Press, April 2003. ISBN 0-385-33593-8.

*The One True Platonic Heaven: A Scientific Fiction of the Limits of Knowledge*, by John L. Casti. Joseph Henry Press, May 2003. ISBN 0-309-08547-0.

*Portraits of the Earth: A Mathematician Looks at Maps*, by Timothy G. Freeman. AMS, September 2002. ISBN 0-8218-3255-7.

*Predicting Presidential Elections and Other Things*, by Ray C. Fair. Stanford University Press, August 2002. ISBN 0-804-74509-9.

*Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem*, by John Derbyshire. Joseph Henry Press, March 2003. ISBN 0-309-08549-7.

*Proofs from the Book*, by Martin Aigner and Günter M. Ziegler. Springer Verlag, third edition, December 2003. ISBN 3-540-40460-0.

*The Riemann Hypothesis: The Greatest Unsolved Problem in Mathematics*, by Karl Sabbagh. Farrar Straus & Giroux, April 2003. ISBN 0-374-25007-3.

*The Saga of Mathematics: A Brief History*, by Marty Lewinter and William Widulski. Prentice Hall, January 2002. ISBN 0-130-34079-0.

*Science in the Looking Glass*, by E. Brian Davies. Oxford University Press, August 2003. ISBN 0-19-852543-5.

*The Search for Certainty: A Philosophical Account of Foundations of Mathematics*, by Marcus Giaquinto. Oxford University Press, October 2002. ISBN 0-198-75244-X.

*Shooting the Sun*, by Max Byrd. Bantam, December 2003. ISBN 0-553-80208-9.

*Six Degrees: The Science of a Connected Age*, by Duncan J. Watts. W. W. Norton & Company, February 2003. ISBN 0-393-04142-5. (Reviewed February 2004.)

*Strange Curves, Counting Rabbits, and Other Mathematical Explorations*, by Keith Ball. Princeton University Press, November 2003. ISBN 0-691-11321-1.

*Sync: The Emerging Science of Spontaneous Order*, by Steven Strogatz. Hyperion, February 2003. ISBN 0-786-86844-9. (Reviewed March 2004.)

*Travels in Four Dimensions: The Enigmas of Space and Time*, by Robin Le Poidevin. Oxford University Press, February 2003. ISBN 0-19-875254-7.

*What Is Thought?*, by Eric B. Baum. MIT Press, January 2004. ISBN 0-262-02548-5.

*What the Numbers Say: A Field Guide to Mastering Our Numerical World*, by Derrick Niederman and David Boyum. Broadway Books, April 2003. ISBN 0-767-90998-4.

\* *When Least Is Best: How Mathematicians Discovered Many Clever Ways to Make Things As Small (or As Large) As Possible*, by Paul J. Nahin. Princeton University Press, November 2003. ISBN 0-691-07078-4.