Reference and Book List

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` in the case of the editor and `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.

Upcoming Deadlines

September 15, 2004: Full proposals for REU sites. See `http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf02136`.

September 15, 2004: Nominations for Alfred P. Sloan Foundation fellowships. See `http://www.sloan.org/programs/fellowship_brochure.shtml` or write to Sloan Research Fellowships, Alfred P. Sloan Foundation, 630 Fifth Avenue, Suite 2550, New York, NY 10111.

September 16, 2004: Proposals for NSF Enhancing the Mathematical Sciences Workforce in the 21st 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`.

October 1, 2004: Applications for AWM Travel Grants. See `http://www.awm-math.org/travelgrants.html`; tel. 301-405-7892; email: `awm@math.umd.edu`.

October 1, 2004: Nominations for the Louise Hay Award and the Alice T. Schafer Mathematics Prize. Contact Hay Award Selection Committee or Alice T. Schafer Award Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; telephone 301-405-7892; email to `awm@math.umd.edu`.

October 1, 2004: Nominations for CRM-Fields Prize. See `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 12, 2004: Enhancing the Mathematical Sciences Workforce in the 21st Century. See `http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf04600`.

October 13, 2004: Full proposals for NSF Distinguished International Postdoctoral Research Fellowships. See `http://www.nsf.gov/pubs/2001/nsf01154/nsf01154.txt`.

October 15, 2004: Applications for support for activities at the Pacific Institute for the Mathematical Sciences. See `http://www.pims.math.ca/opportunities/proposals.html`.

October 15, 2004: Proposals for workshops and summer schools at Banff International Research Station for Mathematical Innovation and Discovery. See `http://www.pims.math.ca/birs/`.

October 15, 2004: Proposals for NSA Grant and Sabbatical Programs. See `http://www.nsa.gov/msp/index.cfm` or telephone 301-688-0400.

October 15, 2004: Applications for NSF Postdoctoral Research Fellow-

Where to Find It

A brief index to information that appears in this and previous issues of the *Notices*.

ships. See http://www.nsf.gov/pubs/2001/nsf01126/nsf01126.htm.

October 29, 2004: Entries for AWM essay contest. See "Mathematics Opportunities" in this issue.

October 30, 2004: Nominations for Clay Research Fellowships. See "Mathematics Opportunities" in this issue.

November 1, 2004: Applications for NSF International Research Fellow Awards. Contact the program officer, Susan Parris, 703-292-8711, sparris@nsf.gov; or visit http://www.nsf.gov/sbe/int/fellows/start.htm.

December 1, 2004: Applications for AMS Centennial Research Fellowships. See http://www.ams.org/employment/centflyer.html or write to Membership and Programs Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294; telephone 401-455-4107; email: prof-serv@ams.org.

December 1, 2004: Nominations for the Ferran Sunyer i Balaguer Prize. See http://www.crm.es/FerranSunyerBalaguer/ffsb.htm.

December 15, 2004: AMS Epsilon Program. See "Mathematics Opportunities" in this issue.

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.

January 15, 2005: Applications for AMS-AAAS Mass Media Summer Fellowships. See "Mathematics Opportunities" in this issue.

February 1, 2005: Applications for AWM Travel Grants and AWM Mentoring Travel Grants. See http://www.awm-math.org/travelgrants.html; tel. 301-405-7892.

May 1, 2005: Applications for AWM Travel Grants. See http://www.awm-math.org/travelgrants.html; tel. 301-405-7892.

June 30, 2005: Nominations for the 2005 Fermat Prize. See "Mathematics Opportunities" in this issue.

Mathematics Staff at DoD Funding Agencies

Five agencies of the Department of Defense fund research in the mathematical sciences. The names, addresses, and telephone numbers of the pertinent staff members are listed below.

Defense Advanced Research Projects Agency
Applied and Computational Mathematics Program
ARPA Defense Sciences Office
3701 North Fairfax Drive
Arlington, VA 22203-1714
703-526-6630
fax 703-696-2207
http://www.darpa.mil/

Anthony J. Tether, Director
Robert F. Leheny, Deputy Director
703-696-2400

Air Force Office of Scientific Research
Directorate of Mathematics and Space Sciences
AFOSR/NM
4015 Wilson Boulevard, Room 713
Arlington, VA 22203-1954
fax: 703-696-8450
http://www.afosr.af.mil/

Clifford Rhoades, Director
703-696-7797
clifford.rhoades@afosr.af.mil

Dynamics and Control
Sharon Heise
703-696-7796
sharon.heise@afosr.af.mil.

Physical Mathematics and Applied Analysis
Arje Nachman
703-696-8427
arje.nachman@afosr.af.mil.

Computational Mathematics
Fariba Fahroo
703-696-8429
fariba.fahroo@afosr.af.mil.

Optimization and Discrete Mathematics
Neal Glassman
703-696-8431
neal.glassman@afosr.af.mil.

Signals Communication and Surveillance
Jon Sjogren
703-696-6564
jon.sjogren@afosr.af.mil.

Software and Systems
Robert Herklotz
703-696-6565
robert.herklotz@afosr.af.mil.

Artificial Intelligence
Robert Herklotz
703-696-6565
robert.herklotz@afosr.af.mil

Electromagnetics
Arje Nachman
703-696-8427
arje.nachman@afosr.af.mil

Space Sciences
David Byers
703-696-8411
david.byers@afosr.af.mil

Army Research Office
Mathematical and Information Sciences Directorate
4300 South Miami Blvd.
Durham, NC 27703-9142
919-549-0641
Fax: 919-549-4310
http://www.aro.ncren.net/people/misdir.htm

Robert Launer, Acting Associate Director (Mathematics)
919-549-4309
launer@aro.arl.army.mil

Bruce West
Senior Research Scientist, MCSD
919-549-4257
bruce.j.west@u.s.army.mil

Computational Mathematics
Stephen Davis, Program Manager
919-549-4284
sdavis@aro.arl.army.mil

Discrete Mathematics and Computer Science
J. Michael Coyle, Program Manager
919-549-4256
coylejm@aro.arl.army.mil

Probability and Statistics
Mou-Hsiung Chang, Program Manager

919-549-4229
changmh@aro.arl.army.mil

Modeling of Complex Systems
John Lavery, Program Manager
919-549-4253
lavery@aro.arl.army.mil

William Sander, Associate Director (Computing and Information Sciences)
919-549-4241
sander@aro.arl.army.mil

Software and Knowledge-Based Systems
David W. Hislop, Program Manager
919-549-4255
hislop@aro.arl.army.mil

Systems and Control
Randy Zachery, Program Manager
919-549-4368
randy.zachery@aro.arl.army.mil
Information and Signal Processing
William Sander, Program Manager
919-549-4241
sander@aro.arl.army.mil

Communication and Networks
Robert Ulman, Program Manager
919-549-4330
ulmanrj@aro.arl.army.mil

Information Assurance
Cliff Wang, Program Manager
919-549-4207
cliff.wang@aro.arl.army.mil

National Security Agency
Mathematical Sciences Program
Attn: R51A, Suite 6557
Ft. George G. Meade, MD 20755-6557
http://www.nsa.gov:8080/programs/msp/

Charles F. Osgood, Director
301-688-0400
msp@math13.math.umbc.edu

Office of Naval Research
Mathematical, Computer, and Information Sciences Division
Office of Naval Research
800 N. Quincy St.
Arlington, VA 22217-5660
http://www.onr.navy.mil

Wen C. Masters, Director (Acting)
703-696-4314
Wen_Masters@onr.navy.mil

Intelligent Systems
Behzad Kamgar-Parsi
703-696-5754
behzad_kamgar-parsi@onr.navy.mil

Software and Computer Systems
Ralph Wachter
703-696-4304
Ralph_Wachter@onr.navy.mil

Command and Control
Gary Toth
703-696-4961
Gary_Toth@onr.navy.mil

Operations Research
Donald Wagner
703-696-4313
email: Donald_Wagner@onr.navy.mil

Applied Analysis
Reza Malek-Madani
703-588-2392
Reza_Malek-Madani@onr.navy.mil

Wen Masters
703-696-4314
Wen_Masters@onr.navy.mil

Probability and Statistics
Wendy Martinez
703-696-4320
Wendy_Martinez@onr.navy.mil

Visualization and Computer Graphics
Lawrence Rosenblum
703-696-0990
Lawrence_Rosenblum@onr.navy.mil

Autonomous Systems
Behzad Kamgar-Parsi
703-696-5754
behzad_kamgar-parsi@onr.navy.mil

DoE Mathematics Program

Mathematical, Information, and Computational Sciences Division (MICS)
Office of Advanced Scientific Computing Research
Office of Science
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20874-1290
http://www.osti.gov/ascrtest/mics

Walter M. Polansky
Acting Director, MICS
301-903-5800
walt.polansky@science.doe.gov

Computer Research
Frederick C. Johnson
301-903-3601
fjohnson@er.doe.gov

National Energy Research Scientific Computing Center (NERSC)
William H. Miner, Jr.
301-903-9550
miner@er.doe.gov

Networking
Thomas D. Ndousse-Fetter
301-903-9960
tndousse@er.doe.gov

Applied Mathematics
Charles H. Romine
301-903-5152
romine@er.doe.gov

Collaboratory Research
Mary Anne Scott
301-903-6368
scott@er.doe.gov

Energy Sciences Network
George R. Seweryniak
301-903-0071
seweryni@er.doe.gov

Program Manager
Gary M. Johnson
301-903-5800
garyj@er.doe.gov

Computer Science
John R. van Rosendale
301-903-3127
johnvr@er.doe.gov

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`.

*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.

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 Coincidence, by Martin Plimmer and Brian King. Icon Books, March 2004. ISBN 1-840-46534-4.

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.

Cogwheels of the Mind: The Story of Venn Diagrams, by A. W. F. Edwards. Johns Hopkins University Press, April 2004. ISBN 0-801-87434-3.

* *Constantin Carathéodory: Mathematics and Politics in Turbulent Times*, by M. Georgiadou. Springer, September 2004. ISBN 3-540-44258-8.

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.

Count Down: Six Kids Vie for Glory at the World's Toughest Math Competition, by Steve Olson. Houghton Mifflin, April 2004. ISBN 0-618-25141-3. (Reviewed August 2004.)

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, 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 June/July 2004.)

The Fabric of the Cosmos, by Brian Greene. Knopf, February 2004. ISBN 0-375-41288- 3.

Fields Medalists' Lectures, edited by Sir Michael Atiyah and Daniel Iagolnitzer. 2nd edition, World Scientific, 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 February 2004.)

From Newton to Hawking: A History of Cambridge University's Lucasian Professors of Mathematics, edited by Kevin C. Knox and Richard Noakes. Cambridge University Press, November 2003. ISBN 0-521-66310-5.

Galois' Theory of Algebraic Equations, by Jean-Pierre Tignol. World Scientific, 2001. ISBN 981-02-4541-6.

Gamma: Exploring Euler's Constant, by Julian Havil. Princeton University Press, May 2003. ISBN 0-691-09983-9. (Reviewed August 2004.)

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. (Reviewed September 2004.)

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.)

* *Karl Pearson: The Scientific Life in a Statistical Age*, by Theodore M. Porter. Princeton University Press, February 2004. ISBN 0-691-11445-5.

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.)

Masters of Theory: Cambridge and the Rise of Mathematical Physics, by Andrew Warwick. University of Chicago Press, July 2003. ISBN 0-226-87375-7.

Math through the Ages: A Gentle History for Teachers and Others, by William P. Berlinghoff and Fernando Q. Gouvêa. Oxton House, 2002. ISBN 1-881929-21-3. (Reviewed in this issue.)

The Mathematical Century: The 30 Greatest Problems of the Last 100 Years, by Piergiorgio Odifreddi. Translated by Arturo Sangalli. Princeton University Press, May 2004. ISBN 0-691-09294-X.

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 0-8218-3455-X. (Reviewed April 2004.)

Mathematicians as Enquirers: Learning about Learning Mathematics, edited by Leone Burton. Kluwer, April 2004. Hardbound, ISBN 1-4020-7853-6; paperback, ISBN 1-4020-7859-5; eBook, ISBN 1-4020-7908-7.

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

Mathematics and War, edited by Bernhelm Booss-Bavnbek and Jens Høyrup. 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 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`.

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 π, 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.

Phase Change: The Computer Revolution in Science and Mathematics, by Douglas S. Robertson. Oxford University Press, March 2003. ISBN 0-195-15748-6.

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.

Probability Theory: The Logic of Science, by E. T. Jaynes; edited by G. Larry Bretthorst. Cambridge University Press, April 2003. ISBN 0-521-59271-2.

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

* *The Reader of Gentlemen's Mail: Herbert O. Yardley and the Birth of American Codebreaking*, by David Kahn. Yale University Press, March 2004. ISBN 0-300-09846-4.

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.

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

Signs of the Inka Khipu: Binary Coding in the Andean Knotted-String Records, by Gary Urton. University of Texas Press, August 2003. ISBN 0-292-78540-2.

Six Degrees: The Science of a Connected Age, by Duncan J. Watts. W. W. Norton, 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.)

Turing (A Novel about Computation), by Christos H. Papadimitriou. MIT Press, November 2003. ISBN 0-262-16218-0.

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.