## Instructions for Authors

Experimental Mathematics is devoted to experimental aspects of mathematical research. It publishes proved results inspired by experimentation, conjectures suggested by experiments, surveys of certain areas from the experimental point of view, descriptions of algorithms and software for mathematical exploration, and general articles of interest to the community. A more detailed statement of philosophy and of the publishability criteria is available on the Web at http://www.expmath.org, or by request from the publisher (see address below, or send e-mail to expmath@expmath.org).

## How to Submit an Article

To submit a contribution, you may either send email to expmath@expmath.org with an attachment or address from which the paper can be downloaded, or send four printed copies of the material to

Experimental Mathematics
A K Peters, Ltd.
63 South Avenue
Natick, MA 01760-4626
phone: 508-655-9933
fax: 508-655-5847
In either case, you must include a note stating that the paper is intended for publication in Experimental Mathematics and contact information for each author, consisting of (at least) full name, postal address, electronic address and phone number.

## Conditions of Submission

By submiting a paper, authors agree and confirm that: substantially the same work has not been published elsewhere (in a journal or proceedings, though it may have appeared in the form of an abstract or as part of a lecture, review, or thesis); substantially the same work is not under consideration for publication elsewhere; if and when the manuscript is accepted for publication, substantially the same work will not be published elsewhere, except that each author retains the right of republication in any book of which he/she is the author or editor; publication has been approved by all authors and, if required, by the institution where the work was carried out.

Submissions will be acknowledged, but not returned.

## Charges

There are no page charges for publications, but authors are expected to contribute toward the cost of color illustrations in their articles. Rates will take into account funding available to authors and editorial necessity.

## Offprints

Authors will receive in all 25 free offprints of their work. At production time authors may order up to 75 additional offprints at cost.

## Manuscript Requirements

Manuscripts must be in English, French or German. They should be written clearly and concisely. We reserve the right to edit contributions for style and format, with changes subject to the authors' approval.
All submissions must include the following elements:

1. title and (if title exceeds 75 characters) alternative short title for running heads;
2. postal address, affiliation (if appropriate) and electronic address (if available) for each author;
3. an abstract of at most 150 words, in the same language as the article, and an English translation if the article is not in English.

## References

References should include full information: author or institution; full title; publisher, city and year (for books, manuals, etc.), or full journal name, volume, year and page range (for papers). References to software should contain complete manufacturer's or distributor's names and addresses. All references in the bibliography should be cited in the text, or accompanied by comments stating their relevance. Reference tags in the text should include author's last name and year of publication, in brackets [Poincaré 1901]. Use a comma to separate a tag from a subsequent page or section number, and semicolons to separate several tags in the same brackets.

## Code and Tables

Experimental Mathematics does not publish computer programs in printed form. You can include short illustrative excerpts from your programs, either within the
text itself (if at most three lines) or as a separate display. Please supply a caption and a number for each displayed listing. Keep in mind that many readers will not be familiar with the programming language in which your program is written; it is almost always better to explain what a program does in words than to let the program speak for itself.

Similar considerations apply to program output and interactive sessions.

Tables should be kept to a minimum, and generally serve an illustrative rather than archival purpose. Very short tables can be embedded in the text; all others should be able to float and have a caption.

## Figures

The following types of figures are acceptable:

1. electronically generated figures (see below);
2. traditional hand-drawn figures, in india ink on glossy paper or vellum;
3. black-and-white and color photographs, of reproduction quality, mounted on $8 \frac{1}{2} \times 11$-inch cardboard.
For hand-drawn figures and photographs, an original and three clear copies should accompany the four copies of the text; or high-resolution scans can be used in electronic submissions.

For electronically generated figures, you can use photographs or printouts for hard-copy submission, but you must supply the electronic source files if your article is accepted for publication. Under no circumstances will we reproduce printouts, low-resolution scans, or screen photographs.

Figure source files should be in Encapsulated PostScript (EPS) or in a form that can be converted to EPS, such as GnuPlot or Mathematica input. Many drawing tools such as Adobe Illustrator and Aldus FreeHand can produce EPS output. Do not save your file as a bitmap, but rather as structured graphics (also known as vector graphics). Compared with vector graphics, bitmaps are wasteful and look grainy (they typically represent a resolution of about 300 dpi , whereas we print at 2400 dpi ).

When in doubt whether your figure source is in an acceptable format, check with the editors by sending electronic mail to expmath@expmath.org.

For each figure, please supply a caption and a number by which the figure is referred to in the text. If possible, integrate the figures with the text; otherwise, indicate their optimal placement by means of a comment such as "Place Figure 1 here". In referring to the figure, avoid constructions ("the curve looks like this:") that require the exact placement to be known in advance.

See also the section on Charges on the preceding page.

## Electronic Text

If your article is accepted, it is helpful for us to have the text in electronic form. You can transfer it by e-mail, ftp , or diskette. Send e-mail to expmath@expmath.org for details.

Experimental Mathematics is typeset in $\mathrm{IA}_{\mathrm{E}} \mathrm{X}$. This means that the production time is shorter if the article is written in $\mathrm{IA}_{\mathrm{E}} \mathrm{X}$ or other variants of $\mathrm{T}_{\mathrm{E}} \mathrm{X}$ than otherwise. However, having the text in electronic form helps even if it is not in $\mathrm{T}_{\mathrm{E}} \mathrm{X}$.

Most word-processing and typesetting systems allow you to save the copy in text-only or ASCII mode, where the formatting codes are discarded, and only the text is kept, in a format that approximates that of the typeset document as well as possible. Please use this option when saving your text for production in Experimental Mathematics.

The rest of this section concerns authors who are using $\mathrm{T}_{\mathrm{E}} \mathrm{X}$ in one of its variants. Here again there are many things you can do to help the editor's and compositor's work and expedite production.

You should preferably use $\mathrm{IAT}_{\mathrm{E}}$ ''s article style or $\mathcal{A}_{\mathcal{M}} \mathcal{S}-\mathrm{T}_{\mathrm{E}}$ 's amsppt style. Whether you use one of these styles, another style, or another variant of $\mathrm{T}_{\mathrm{E}} \mathrm{X}$, indicate at the top of the file what system you're using.

Don't use two-column format.
Be as consistent as possible in using your own macros. Put them into a file that is input at the top the document, after all style files. Do not embed any new definitions in your text. Avoid redefining existing $\mathrm{T}_{\mathrm{E}} \mathrm{X}, \mathcal{A}_{\mathcal{M}} \mathcal{S}-\mathrm{T}_{\mathrm{E}} \mathrm{X}$ or $\mathrm{IAT}_{\mathrm{E}} \mathrm{X}$ commands.

Avoid using explicit vertical spacing commands such as \vskip, \medskip, \bigbreak. Default spacing is provided by \beginsection, \proclaim, \demo, etc. in $\mathcal{A} \mathcal{M} \mathcal{S}-\mathrm{T}_{\mathrm{E}} \mathrm{X}$ and plain $\mathrm{T}_{\mathrm{E}} \mathrm{X}$, and by $\backslash$ begin\{theorem\}, etc., in $\mathrm{IAT}_{\mathrm{E}} \mathrm{X}$. To set off a paragraph or a portion of your text other than proofs, theorems, exercises, etc., you may add extra space, but please provide the compositor with a comment line (a line preceded by \%) to make sure this space will not be eliminated in reformatting.

Likewise, avoid using explicit horizontal spacing commands. If you must use extra spacing, do it consistently, by means of macros.

Do not, under any circumstances, insert forced line breaks or page breaks in your document. There is no point in your trying to optimize line breaks and page breaks in the original manuscript, since they will not be preserved in the journal's two-column format. Forced breaks just confuse the compositor.

In general, if you want certain elements to be kept together, or displayed in a particular fashion, add a comment line for the compositor in your electronic files or indicate it in your hard copy.

# Mathematics isnt' just 

 fur and games...

A Gardner's Workout:
Training the Mind and
Entertaining the Spirit
Martin Gardner
ISBN 1-56881-120-9
hardcover; 330 pp.; \$35.00; £26.00
For many decades, Martin Gardner, the Grand Master of mathematical puzzles, has provided the tools and projects to furnish our all-too-sluggish minds with an athletic workout. This volume presents a new collection of problems and puzzles not previously published in book form.


## Hex Strategy

Cameron Browne
ISBN 1-56881-117-9
paperback; 392 pp.; \$39.00, £28.00
Hex Strategy is the first book to offer a comprehensive look at the game of Hex, from its history and mathematical underpinnings to discussions of advanced playing techniques.


## Puzzlers' Tribute:

A Feast for the Mind
David Wolfe, Tom Rodgers, editors
ISBN 1-56881-121-7
hardcover; 436 pp. $\$ 35.00$, £26.00
Martin Gardner stands at the nexus of the worlds of magic, mathematics, and puzzles, and this collection brings together offerings in tribute to him. The breadth of the contributions, in form and content, ranges from puzzles to poems, from brainteasers to brief biographical accounts of the greatest puzzler of all.


## The Dots-and-Boxes Game: Sophisticated Child's Play Elwyn Berlekamp <br> ISBN 1-56881-129-2 <br> paperback; 144 pp.; \$14.95, £11.00 <br> This book takes a mathematical approach to solving the classic game of Dots-and-Boxes.



## The Mathemagician and Pied Puzzler

Elwyn Berlekamp, Tom Rodgers, editors
ISBN 1-56881-075-X
hardcover; 266 pp.; \$35.00, £26.00
This volume is an imaginative collection created in tribute to Martin Gardner. It contains pieces as widely varied as Gardner's own interests, ranging from limericks to lengthy treatises, from mathematical journal entries to personal stories.


## Mathematical Go:

Chilling Gets the Last Point
Elwyn Berlekamp, David Wolfe
ISBN 1-56881-032-6
hardcover; 256 pp.; \$39.00, £28.00
With the development of new concepts in combinatorial game theory, the authors have been able to analyze Go games and find solutions to real endgame problems that have stumped professional Go players for years.
X. Buff, C. Henriksen, and J. H. Hubbard 481

Farey Curves
C. G. Pinner and D. Wolczuk 487

On the Inhomogeneous Hall's Ray of Period-One Quadratics
C. Hayat-Legrand, S. Matveev, and H. Zieschang 497

Computer Calculation of the Degree of Maps into the Poincaré Homology Sphere
B. Bernhardsson and J. Peetre 509

Singular Values of Trilinear Forms
R. E. Schwartz 519

The Pentagram Map is Recurrent
S. C. Coutinho and B. F. M. Ribeiro 529

On Holomorphic Foliations Without Algebraic Solutions
G. Kemper, E. Körding, G. Malle, B. H. Matzat, D. Vogel, and G. Wiese 537

A Database of Invariant Rings
R. Baeza, R. Coulangeon, M. I. Icaza, and M. O'Ryan 543

Hermite's Constant for Quadratic Number Fields
N. Koblitz 553

Almost Primality of Group Orders of Elliptic Curves Defined over Small Finite Fields
K. Rubin and A. Silverberg 559

Rank Frequencies for Quadratic Twists of Elliptic Curves
P. Brinkmann and S. Schleimer 571

Computing Triangulations of Mapping Tori of Surface Homeomorphisms
E. Breimer, M. Goldberg, B. Kolstad, and M. Magdon-Ismail 583

On the Height of a Random Set of Points in a d-Dimensional Unit Cube
J. Opgenorth 599

Dual Cones and the Voronoi Algorithm
G. Másson and B. Shapiro 609

On Polynomial Eigenfunctions of a Hypergeometric-Type Operator
N. Huang and R. Strichartz 619

Sampling Theory for Functions with Fractal Spectrum
Cover art: The size of a largest totally ordered subset of a set of $n$ random points in the $d$-cube grows with the $d$ th root of $n$. Such a subset must be very near the diagonal; this makes the experimental study of the proportionality constant manageable. See page 583. (Courtesy E. Breimer, M. Goldberg, B. Kolstad, and M. Magdon-Ismail).

A K PETERS, LTD
63 South Avenue
PRSRT STD
Natick, MA 01760
(508) 655-9933
www.akpeters.com

US POSTAGE
PAID
WELLESLEY, MA
PERMIT \# 50394

