Instructions for Authors

Communications in Mathematical Physics

The instructions should be read carefully before preparing the manuscript

A. General

The author(s) transfer(s) the copyright to his/their article to Springer-Verlag effective if and when the article is accepted for publication. The copyright covers the exclusive and unlimited rights to reproduce and distribute the article in any form of reproduction (printing, electronic media or any other form); it also covers translation rights for all languages and countries. For U.S. authors the copyright is transferred to the extent transferable.

Manuscripts should be submitted in **duplicate:** (i) either to the **Editor** who, in the opinion of the author, is most closely concerned with the subject matter of the paper (this should be the rule): (ii) or to the **Chief Editor.**

Submission of diskettes is encouraged, but these should not be sent until any changes requested during the reviewing process have been entered and authors have been notified of acceptance for publication. Authors are requested to follow the instructions printed in the journal for preparation of diskettes.

Papers submitted for publication should preferably be written in **English.**

Authors who prepare their papers with TEX are encouraged to ask for Springer-Verlag's TEX macropackages, called PJour1g (plain-TEX) and LJour1 (LATEX), either by letter to Springer-Verlag or by e-mail to

`svserv@vax.ntp.springer.de`

– Springer-Verlag's e-mail server address. This message must contain one (several) of the following commands

for PJour1g: `get /tex/plain/pjour1g.zip`
for LJour1: `get /tex/latex/ljour1.zip`

After the manuscript has been accepted by the editor(s) the author must send in to the **Chief Editor** a disk containing the text in final form as well as any additional macro definitions used by the author, together with a printout for reference. It is important to ensure that the text is identical in the hard copy and in the soft copy. The production time for papers submitted in this form can be reduced considerably.

Authors who have written their papers in TEX but have not, for whatever reasons, used Springer-Verlag's macros should likewise send in a disk and corresponding hard copy. Springer-Verlag will then decide on a case-by-case basis whether it makes sense economically to work from the TEX files.

To facilitate communication between the authors, editors and publisher, the author should furnish a **fax number** and/or **e-mail address** on the title page of the manuscript.
Each paper should be preceded by a **short abstract** in English.

Please submit one original manuscript typed on one side of the sheet only (in double spacing with wide margins) plus 2 copies photocopied on both sides to keep postage charges at a minimum. In order to reduce mailing costs, rejected manuscripts will not normally be returned (with the exception of original illustrations). Normally only printer's errors should be corrected in the proofs. A **charge** is made **for extensive changes** not due to typesetting errors, introduced at the proof stage.

Formulae should be printed or typed whenever possible. Dot matrix printer outprint is not accepted unless clearly legible.

Illustrations and diagrams should be submitted on separate sheets and not included in the text. They should be good quality and drawn in India ink using clean uniform lines. Computer-drawn figures are acceptable provided they are of comparable quality. Lines and curves must be smooth. Lettering 2 mm high is recommended. The publisher reserves the right to reduce or enlarge illustrations and diagrams. The author should indicate in the margin of the manuscript where illustrations and diagrams are to be inserted.

Footnotes, other than those referring to the title of the paper, should be avoided. If absolutely necessary, they should be numbered consecutively and placed at the foot of the page on which they occur (not at the end of the article).
On the first page of the manuscript a short **running title** should be provided (not to exceed 70 characters, including spaces).

The **list of references** at the end of the paper should always be in alphabetical order and include the names and initials of all authors, and years of publication (see examples below). Names of journal and book series should be ab-

breviated in accordance with the *Zentralblatt für Mathematik*. Whenever possible, please replace all references to papers accepted for publication, preprints or technical reports by the exact name of the journal, as well as the volume, first and last page numbers and year, if the article has already been published or accepted for publication.

When styling references, the following examples should be observed:

Journal article:

1. **or** [W] Woronowicz, S.L.: Operator equalities related to the Quantum E(2) group. Commun. Math. Phys. **144,** 417–428 (1992)

Complete book:

2. **or** [P–S] Pressley A., Segal, G.: Loop groups. Oxford: Clarendon Press 1986

Single contribution in a book:

3. **or** [M] Mack, G. Introduction to Conformal Invariant Quantum field theory in two or more dimensions. In: 't Hooft, G., Jaffe, A., Mack, G., Mitter, P., Stora, R. (eds.) Nonperturbative quantum field theory. Proceedings, Cargese 1987, pp. 353–383. New York, London: Plenum Press 1988

Citations in the text should be either (**a**) by numbers in square brackets, e.g., [1], or Bombieri and Giusti [1], referring to an alphabetically ordered and numbered list, or (**b**) by the author's initials in square brackets, e.g., [B–G], or (**c**) by author and year in parentheses, e.g., Bombieri and Giusti (1971). Any one of these styles is acceptable if used *consistently* throughout the paper. In the third system, if there are two authors, both should be named, e.g., Agar and Douglas (1955); if a work with more than two authors is cited, only the first author's name plus „et al." need be given; e.g., Komor et al. (1979); if there is more than one reference by the same author or team of authors in the same year, then a, b, c, etc. should be added after the year both in the text and in the list of references.

Thirty offprints are supplied free of charge. Additional offprints may be ordered by the authors at cost when proofs are returned.

B. Marking-up the manuscript

1. Text

The words **"Theorem", "Lemma", "Corollary", "Proposition", „Definition",** etc. are normally printed in **boldface,** followed by the formulation in *italics* (or, if italic script is not available, underlined with a single straight line) and with the end clearly indicated. The concept of the definition should be in boldface. The words *"Proof", "Remark", "Example", "Note",* etc. are printed in *italics* with the formulation in ordinary (roman) typeface. If any text in the manuscript is underlined and should be printed with this underlining, a remark explaining this must be attached.

2. Formulae

Letters in *formulae* are printed in *italics* and figures in roman if not marked otherwise. It will help the printer if in doubtful cases the position of indices and exponents is marked thus: $h_{\hat{j}}$, a^{ψ}. Spacing of indices and exponents must be specially indicated ($A_{m\ n}^{\ n\ m}$) otherwise they will be set (A_{mn}^{nm}).

The following are frequently confused and should be made unambiguous:

$\cup$, U, $\cup$, U; $\circ$, o, O, 0; $\times$, x, X, χ, κ; $\vee$, v, ν; θ, Θ, ϕ, φ, Φ, $\varnothing$, $\emptyset$; ψ, Ψ; ϵ, $\in$;

a', a^{I}, the symbol a and the indefinite article a; also handwritten letters:

c, C; e, l; I, J; k, K; o, O; p, P; s, S; u, U; v, V; w, W; x, X; z, Z.

Please take care to distinguish these capital letters by triple underlining.

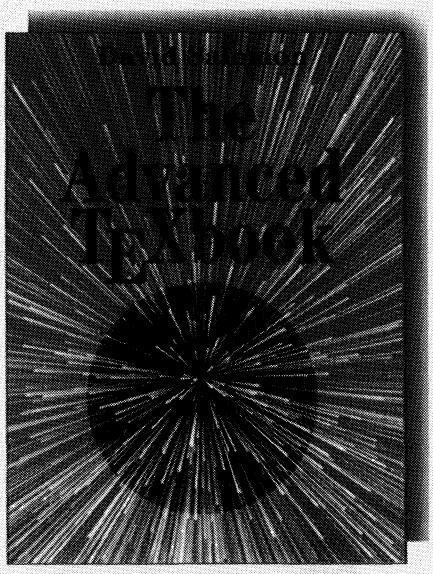
Final check:

- Names and complete professional adresses of all authors provided on title page?
- Summary enclosed?
- Short running title provided?
- If the paper is not in English, English title and English summary provided?
- Texts and ends of theorems, lemmas, etc., clearly marked?
- All figures enclosed?
- References listed according to the Instructions to Authors?

TEX users:

- Request PJour l g or LJour l macropackage from: `svserv@vax.ntp.springer.de`
- Submit disk with corresponding hard copy after acceptance of manuscript
- Make sure disk and hard copy are identical

We have the TEXnology



D. Salomon

The Advanced TEXbook

1995. XX, 482 pages.
Softcover DM 68,– ISBN 0-387-94556-3

Why is TEX so hard to use? Because it is in essence a programming language, and so it is best viewed from this perspective. The author presents a complete course in TEX which will be suitable for users of TEX who want to advance beyond the basics.
The initial chapters introduce the essential workings of TEX, including a detailed discussion of boxes and glue. Later chapters cover a wide range of advanced topics such as: macros, conditionals, tokens, leaders, file I/O, the line- and page-break algorithms, and output routines.
Throughout, numerous examples are given and exercises (with answers) provide a means for readers to test their understanding of the material. As a result, no serious user of TEX will want to be without this text.

M. Seroul, S. Levy

A Beginner's Book of TEX

1st ed. 1991. Corr. 3rd printing 1995.
XII, 284 pages.
Softcover DM 61,–
ISBN 3-540-97562-4

A Beginner's Book of TEX is addressed primarily to beginners, but it contains much information that will be useful to aspiring TEX "wizards". Moreover, the authors kept firmly in mind the diversity of backgrounds that characterizes TEX users: authors in the sciences and in the humanities, secretaries, technical typists. The book contains a careful explanation of all fundamental concepts and commands, but also a wealth of commented examples and "tricks" based on the authors' long experience with TEX.

M. Doob

TEX: starting from 1

1993. X, 114 pages.
Softcover DM 39,80
ISBN 3-540-56441-1

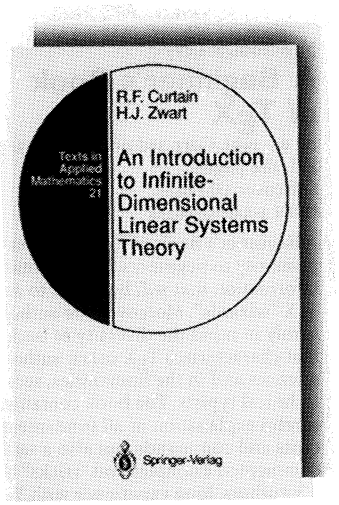
This book is designed for the complete newcomer to TEX. It starts by showing how to typset simple text that mostly uses the defaults predefined by TEX. By use of graded exercises, the situations covered slowly become more complex and include many different types of mathematical constructions and tables. In the end it is possible to handle almost any standard mathematical situation.

Prices subject to change without notice. In EU countries the local VAT is effective.

Springer

Springer-Verlag, P. O. Box 31 13 40, D-10643 Berlin, Germany. Fax: (0)30/8207-301/448, e-mail: orders@springer.de IMCA.3019/MNT/E/1

Texts in Applied Mathematics



Volume 21
R. F. Curtain, H. Zwart
An Introduction to Infinite-Dimensional Linear Systems
1995. XVIII, 698 pages. 29 figures.
Hardcover DM 88,–
ISBN 0-387-94475-3

All the mathematical background is summarized in an extensive appendix, and all the new theory is demonstrated on the same three physical examples: two distributed systems of a diffusion type and of a wave type, and a delay system. Since the aim is to enable students to apply the theory to distributed and delay systems commonly met in applications, each chapter has about 30 exercises testing both theoretical concepts and applications to examples of a physical nature.

Volume 20
M. H. Holmes
Introduction to Perturbation Methods
1995. XIII, 337 pages. 88 figures.
Hardcover DM 68,–
ISBN 3-540-94203-3

The book covers traditional topics, such as boundary layers and multiple-scales. However, it also contains material arising from current research interest. This includes homogenization, slender body theory, symbolic computing, and discrete equations.

Volume 22
J. W. Thomas
Numerical Partial Differential Equations
Finite Difference Methods
1995. XV, 445 pages. 70 figures.
Hardcover DM 78,–
ISBN 0-387-97999-9

The author stresses the use of technology throughout the text, allowing the student to utilize it as much as possible. The use of graphics for both illustration and analysis is emphasized and algebraic manipulators are used when convenient.
A strong long-term reference book.

Prices subject to change without notice.
In EU countries the local VAT is effective.

Springer

Springer-Verlag, P. O. Box 31 13 40, D-10643 Berlin, Germany. Fax: (0)30/8207-301/448, e-mail: orders@springer.de IMCA.3110/MNT/E/1

Communications in Mathematical Physics

Copyright. Submission of a manuscript implies: that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review, or thesis); that it is not under consideration for publication elsewhere; that its publication has been approved by all coauthors, if any, as well as by the responsible authorities at the institute where the work has been carried out, that, if and when the manuscript is accepted for publication, the authors agree to automatic transfer of the copyright to the publisher; and that the manuscript will not be published elsewhere in any language without the consent of the copyright holders.
All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e.g., as offprints), as well as all translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from the publisher.
The use of general descriptive names, trade names, trademarks, etc., in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.
While the advice and information in this journal is believed to be true and accurate at the date of its goint to press, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.
Special regulations for photocopies in the USA: Photocopies may be made for personal or in-house use beyond the limitations stipulated under Section 107 or 108 of U.S Copyright Law, provided a fee is paid. All fees should be paid to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0010-3616, the volume, and the first and last page numbers of each article copied. The copyright owner's consent does not include copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must first be obtained from the publisher.
The Canada Institute for Scientific and Technical Information (CISTI) provides a comprehensive, world-wide document delivery service for all Springer-Verlag journals. For more information, or to place an order for a copyright-cleared Springer-Verlag document, please contact Client Assistant, Document Delivery, Canada Institute for Scientific and Technical Information, Ottawa K1A 0S2, Canada (Tel.. 613-993-9251; Fax· 613-952-8243; e-mail: cisti.docdel@nrc ca).

Authors should mark manuscripts according to the „Instructions for Authors." They should be aware that manuscripts which are not properly marked require additional time for publication. Manuscripts should be sent to:

Prof. H. Araki, Research Institute for Mathematical Sciences, Kyoto University, Kyoto, 606, Japan	*Mathematical methods with direct relevance to physics*
Prof. D. Brydges, Department of Mathematics, University of Virginia, Charlottesville, VA 22903, USA	*Statistical physics, quantum field theory*
Prof. A. Connes, I.H.E.S., F-91440 Bures-sur-Yvette, France	*Quantum physics and differential geometry*
Prof. R. Dijkgraaf, Department of Mathematics, University of Amsterdam, Plantage Muidergracht 24, NL-1018 TV Amsterdam, The Netherlands	*String theory, conformal field theory and related topics*
Prof. G. Felder, Department of Mathematics, University of North Carolina, Chapel Hill, NC 27599, USA	*Quantum field theory*
Prof. M.E. Fisher, Institute for Physical Science and Technology, University of Maryland, College Park, MD 20742, USA	*Statistical physics*
Prof. M. Herman, Centre de Mathématiques Pures, Ecole Polytechnique, F-91128 Palaiseau Cedex, France	*Classical dynamical systems*
Prof. A. Jaffe, Lyman Laboratory of Physics, Harvard University, Cambridge, MA 02138, USA	*Chief Editor*
Prof. M. Jimbo, Department of Mathematics, Kyoto University, Kitashirakawa Oiwake-cho, Sakyo-ku, Kyoto 606, Japan	*Integrable systems and related topics*
Prof. A. Kupiainen, Department of Mathematics, Helsinki University, P. O. Box 4, Hallituskatu 15, SF-00014 Helsinki, Finland	*Disordered systems, non-linear PDE's of mathematical physics*
Prof. J.L. Lebowitz, Department of Mathematics, Rutgers University, New Brunswick, NJ 08903, USA	*Nonequilibrium statistical mechanics*
Prof. B. Simon, Department of Mathematics, California Institute of Technology, Pasadena, CA 91125, USA	*Schrödinger operators and atomic physics*
Prof. Ya. G. Sinai, Department of Mathematics, Fine Hall, Princeton University, Princeton, NJ 08544–1000, USA	*Statistical physics and dynamical systems*
Prof. S.-T. Yau, Department of Mathematics, Harvard University, 1 Oxford Street, Cambridge, MA 02138, USA	*Relativity; geometry and physics*

Subscription Information (ISSN 0010-3616)

Vols. 174–181 (3 issues each) will appear in 1996. **North America.** Recommended annual subscription rate· US $ 4546.00, single issue price $ 225.00 including carriage charges. Subscriptions are entered with prepayment only. Orders should be addressed to: Springer-Verlag New York Inc., Journal Fulfillment Services Dept., 333 Meadowlands Parkway, Secaucus, NJ 07094, USA, Tel. (201) 348-4033, Telex 023125994, Fax (201)348-4505. Members of the International Association of Mathematical Physics (IAMP) are entitled to receive the journal strictly for their own personal use at a special reduced rate. The orders must be placed through the IAMP. **All Other Countries.** Recommended annual subscription rate. DM 6096.00, plus carriage charges: [Germany. DM 87.60 incl. VAT; all other countries· DM 175.20] SAL or airmail charges are available upon request SAL delivery is mandatory to Japan, India, and Australia/New Zealand. Airmail delivery to all other countries is available upon request. Volume price· DM 762.00, single issue price. DM 304.80 plus carriage charges. Orders for all countries except North America can either be placed with your bookdealer or sent directly to· Springer-Verlag, Ms Tiks, Postfach 311 340, D-10643 Berlin, Germany, Tel. 030/8207-358, Telex 0183319, Fax (0)30/8207448. Cancellations must be received by September 30 to take effect at the end of the same year **Changes of Address:** Allow six weeks for all changes to become effective. All communications should include both old and new addresses (with Postal Codes) and should be accompanied by a mailing label from a recent issue. According to § 4 Sect. 3 of the German Postal Services Data Protection Regulations, if a subscriber's address changes the German Federal Post Office can inform the publisher of the new address even if the subscriber has not submitted a formal application for mail to be forwarded. Subscribers not in agreement with this procedure may send a written complaint to Springer-Verlag's Berlin office within 14 days of publication of this issue. **Back Volumes.** Prices are available on request **Microform:** Microform editons are available from: University Microfilms International, 300 N. Zeeb Road, Ann Arbor, MI 48106, USA.

Production

Journal Production Department I, Springer-Verlag, Monika Ebert, Postfach 105280, D-69042 Heidelberg, Germany.
Address for courier, express and registered mail: Tiergartenstrasse 17, D-69121 Heidelberg, Germany,
Tel.(0) 62 21/487-431, Telex 0461723, Fax (0)6221-487624, E-mail: ebert@springer.de

Communications in Mathematical Physics

Chief Editor	A. Jaffe, Cambridge, MA
Editorial Board	H. Araki, Kyoto
	D. Brydges, Charlottesville, VA
	A. Connes, Bures-sur-Yvette
	R. Dijkgraaf, Amsterdam
	G. Felder, Chapel Hill, NC
	M. E. Fisher, College Park, MD
	M. Herman, Palaiseau
	M. Jimbo, Kyoto
	A. Kupiainen, Helsinki
	J. L. Lebowitz, New Brunswick, NJ
	B. Simon, Pasadena, CA
	Ya. G. Sinai, Princeton, NJ
	S.-T. Yau, Cambridge, MA
Advisory Board	M. F. Atiyah, Oxford
	L. Faddeev, St. Petersburg
	F. Hirzebruch, Bonn
	I. Singer, Cambridge, MA
	C. N. Yang, Stony Brook, NY

0010-3616(199602)176:1;1-7

Responsible for Advertisements: E. Lückermann, M. Stresow, Heidelberger Platz 3, D-14197 Berlin, Germany
Telephone: (030) 8207-1, Telex 01-85411, Fax (0)30/8207300

Springer-Verlag Berlin Heidelberg New York Tokyo Hong Kong Barcelona Budapest
Printers Saladruck, Berlin
Printed in Germany

© Springer-Verlag Berlin Heidelberg 1996

Springer-Verlag GmbH & Co KG, Berlin, Germany