Instructions to Authors

Communications in **Mathematical Physics**

The instructions should be read carefully before preparing the manuscript.

A. General

Papers submitted for publication should preferably be written in English.

A summary for Zentralblatt für Mathematik should be attached. Manuscripts (in duplicate) must be in their final form and typed on one side of the paper only in double-line spacing with wide margins. The author should also keep a copy of the manuscript. An abstract must be included.

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 typewritten whenever possible.

Special markings should be explained in a "Note to the printer" (see suggestions in section B). Copies produced by matrix printer are not accepted unless clearly legible.

Illustrations and diagrams should be submitted on separate sheets and not included in the text. They should either be good-quality glossy prints in the desired final size (inscriptions 2 mm high are recommended) or be drawn about twice the final size in India ink using clean uniform lines. In the latter case, letters and numbers should be about 4 mm high to allow for 50% reduction. 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 typewriter strokes, 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 (see examples below). Names of journals and book series should be abbreviated in accordance with *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 the references, the following examples should be observed:

Journal article:

1. or [B–G] Tomboulis, E., Yaffe, L.: Finite temperature SU(2) lattice gauge theory. Commun. Math. Phys. 100, 313–341 (1985)

Complete book:

or [M] Bratelli, O., Robinson, D.W.: Operator algebras and quantum statistical mechanics, Vol II. Berlin, Heidelberg, New York: Springer 1981

Single contribution in a book:

3. or [G] Gromov, M.: Large Riemannian manifolds. In: Shiohama, K., Sakai, T., Sunada, T. (eds.) Curvature and topology of Riemannian manifolds. Proceedings, Katata 1985. Lecture Notes Mathematics, Vol. 1201, pp. 108–121. Berlin, Heidelberg, New York: Springer 1986

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.

One hundred (100) **offprints** of each paper will be supplied free of charge. Additional offprints are available in lots of 100, provided the order form is received with the corrected proof.

B. Color coding

Manuscripts must be marked according to the following rules unless produced on a golfball/daisy typewriter or on a good-quality printer and the desired fonts (Greek, script, special roman, boldface, etc.) are clearly recognizable. Special letters or symbols should be explained in a "Note to the printer". Unmarked manuscripts may have to be returned to the authors, which may cause a delay in publication.

1. Text

Manuscripts produced by computer typesetting with a daisy wheel or laser printer, or by manual typing with special fonts require marking only of special symbols, and distinguishing between 0 and O, 0 and o, and 1 and l. Special letters or symbols should be explained in a "Note to the Printer." In other cases the following instructions should be followed.

The words "Theorem", "Lemma", "Corollary", "Proposition" etc. are normally printed in bold-face, followed by the formulation in *italics* (to be underlined in the manuscript), the end of which should be clearly indicated. The words "Proof", "Remark", "Example", "Note" etc. are printed in *italics* with the formulation in ordinary (roman) typeface, and Definition in boldface. The text of the definition itself should be in roman except for the concept defined, which should be in *italics*. Words or sentences to be set in italics should be marked by single underlining. If the material underlined in the manuscript is to be typeset with underlining (and not set in italics), this must be explained to the printer.

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_j , a^i . Spacing of indices and exponents must be specially indicated $(A_m^n)^m$ otherwise they will be set $(A_m^n)^n$.

Underlining for special alphabets and typefaces should be done according to the following code:

should be done according to the following code: Violet: Letters in formulae (l, O, o) to be

distinguished from numerals (1, 0)

Brown: boldface (headings, boldface letters in

formulae)

Yellow: roman (abbreviations e. g. Re, Im, log,

sin, ord, id, lim, sup, etc.)

Red: Greek Green: script

Orange: special roman
Blue: Gothic
Encircled: sanserif

The following are frequently confused and should be made unambiguous:

 \cup , \cup , \cup , u; \circ , o, o, o, o; \times , x, x, χ , κ ; \vee , v, v; θ , Θ , ϕ , φ , Φ , \varnothing , ϕ ; ψ , Ψ ; ε , ε ; a'; the symbol a and the indefinite article a; also the 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 double underlining.

C. Examples

1. Special alphabets or typefaces

Boldface A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z

Greek $\Gamma, \Lambda, \Theta, \Lambda, \Xi, \Pi, \Sigma, \Phi, \Psi, \Omega$ $\alpha, \beta, \gamma, \delta, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \lambda, \mu,$ $\gamma, \xi, \alpha, \pi, \delta, \sigma, \tau, \rho, \phi, \chi, \psi, \omega$

 $v, \, \xi, \, o, \, \pi, \, \varrho, \, \sigma, \, \tau, \, v, \, \varphi, \, \phi, \, \chi, \, \psi, \, \omega$ Script $\mathscr{A}, \mathscr{B}, \mathscr{C}, \mathscr{D}, \mathscr{E}, \mathscr{F}, \mathscr{G}, \mathscr{H}, \mathscr{I}, \mathscr{I}, \mathscr{K},$

 $\mathcal{L}, \mathcal{M}, \mathcal{N}, 0, \mathcal{P}, 2, \mathcal{R}, \mathcal{G}, \mathcal{T}, \mathcal{U}, \mathcal{V}, \mathcal{W}, \mathcal{X}, \mathcal{Y}, \mathcal{Z}$ $\mathcal{W}, \mathcal{X}, \mathcal{Y}, \mathcal{Z}$ $\mathcal{Q}, \mathcal{U}, \mathcal{U},$

Special roman A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, 1

Gothic $\mathfrak{A}, \mathfrak{B}, \mathfrak{C}, \mathfrak{D}, \mathfrak{E}, \mathfrak{F}, \mathfrak{G}, \mathfrak{H}, \mathfrak{H$

o, p, q, r, s, t, u, v, w, x, y, 3

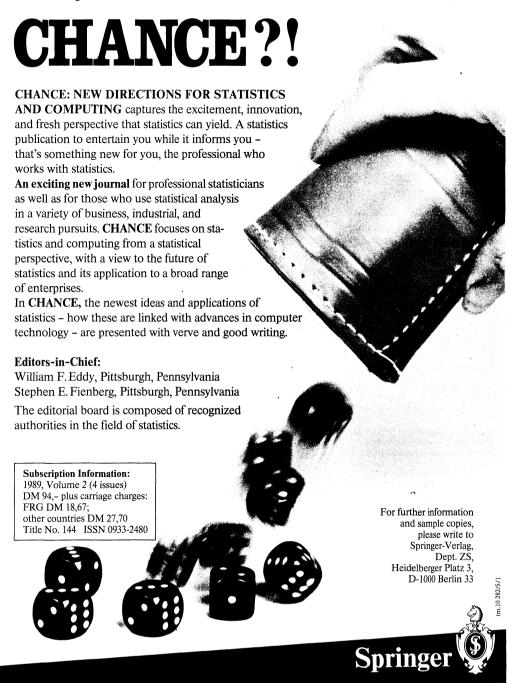
Sanserif A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z

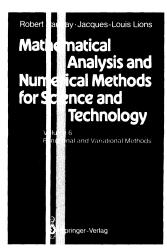
a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z

Final check:

- All formula characters unambiguous?
- Information on title page complete (title, name(s) of author(s), institute(s), complete address(es)?
- All figures enclosed?
- References complete and cross-checked?
- Text and end of theorems, lemmas etc. marked?
- Short running title given?
- Summary for Zentralblatt für Mathematik enclosed?

Why not take a





Mathematical Analysis and Numerical Methods for Science and Technology compiles the mathematical knowledge required by researchers in mechanics, physics, engineering, chemistry and other branches of mathematics applied to the theoretical and numerical resolution of physical models on computers.

The advent of high-speed computers has revolutionised methods of computation. For the first time it is possible to calculate values from models accurately and rapidly. Researchers and engineers thus have a crucial means of using numerical results to modify and adapt arguments and experiments along the way.

Since the publication in 1924 of the "Methoden der mathematischen Physik" by Courant and Hilbert, there has been no other comprehensive and up-to-date publication presenting the mathematical tools needed in applications of mathematics in directly implementable form.

Volume 1:

Physical Modelling and Potential Theory

1988. Hard cover approx. DM 198,-. Prepublication price (valid only up to publication) approx. DM 168,-. ISBN 3-540-50207-6

Contents:

Chapter I: Physical Examples Chapter II: The Laplace Operator

Volume 2:

Functional Analysis and Variational Methods

1988. 20 figures. 670 pages. Hard cover DM 198,-. Prepublication price (valid only up to publication) DM 168,-. ISBN 3-540-19045-7

Contents:

Chapter III: Functional Transformations

Chapter IV: Sobolev Spaces
Chapter V: Linear Differential
Operators

Chapter VI: Operators in Banach Spaces and in Hilbert Spaces

ChapterVII: Linear Variational Problems. Regularity

Volume 3:

Spectral Theory and Applications

1988. Hard cover approx. DM 198,-. Prepublication price (valid only up to publication) approx. DM 168,-. ISBN 3-540-50208-4

Contents:

Chapter VIII: Spectral Theory
Chapter IX: Examples in Electromagnetism and
Quantum Physics

Volume 4:

Integral Equations and Numerical Methods

1988. Hard cover approx. DM 198,-. Prepublication price (valid only up to publication) approx. DM 168,-. ISBN 3-540-50209-2

Contents:

Chapter X: Mixed Problems and Tricomi Equation

Chapter XI: Integral Equations
Chapter XII: Numerical Methods
for Stationary Problems

Chapter XIII: Approximation of Integral Equations by Finite Elements. Error Analysis

Volume 5:

Evolution Problems I

1988. Hard cover approx. DM 198,-. Prepublication price (valid only up to publication) approx. DM 168,-. ISBN 3-540-50205-X

Contents:

Chapter XIV: Evolution Problems: Cauchy Problems in IRⁿ

Chapter XV: Evolution Problems: The Method of

Diagonalisation
Chapter XVI: Evolution Problems:

The Method of Laplace Transformation

Chapter XVII: Evolution Problems: The Method of Semigroups

Chapter XVIII: Evolution Problems: Variational Methods

Volume 6:

Evolution Problems II - The Navier-Stokes and Transport Equations in Numerical Methods -

1988. Hard cover approx. DM 198,-. Prepublication price (valid only up to publication) approx. DM 168,-. ISBN 3-540-50206-8

Contents:

Chapter XIX: The Linearised Navier-Stokes Equations

Chapter XX: Numerical Methods for Evolution Problems

Chapter XXI: Transport

Springer-Verlag Berlin Heidelberg New York London Paris Tokyo Hong Kong

Heidelberger Platz 3, D-1000 Berlin 33 175 Fifth Ave., New York, NY 10010, USA 28, Lurke Street, Bedford MK40 3HU, England 26, rue des Carmes, F-75005 Paris 37-3, Hongo 3-chome, Bunkyo-ku, Tokyo 113, Japan Room 1603, Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong





Editor-in-Chief: Hoon Heng Teh, Singapore

Managing Editor: Jin Akiyama, Tokyo

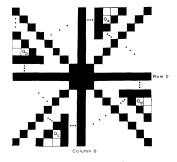
Co-Managing Editors: Yoshimi Egawa, Tokyo; Hikoe Enomoto, Tokyo

Consulting Editors: C. Berge, Paris; B. Bollobás, Cambridge; P. Erdös, Budapest; P. Frankl, Paris; R. L. Graham, Murray Hill; F. Harary, Las Cruces; S. Hitotumatu, Kyoto; C. L. Liu, Urbana-Champaign; R. Rado, Reading; W. T. Tutte, Waterloo

Editors: E. Bannai, Columbus; M. G. Guan, Jinan; M. Kano, Akashi; K. M. Koh, Singapore; C. K. Lim, Kuala Lumpur; M. J. Ruiz, Manila; Y. Wang, Beijing; W. D. Wei, Sichuan; H. P. Yap, Singapore

Hardly a branch of mathematics has a history longer than that of combinatorics, and similarly, no branch of knowledge has as comprehensive an application to modern science. Research results in combinatorics are applied in a range of fields including computer science, artificial intelligence, communication networks, and space technology.

Graphs and Combinatorics is an international journal devoted to research concerning all aspects of combinatorial mathematics. In addition to original research papers and survey articles, the journal also features short communications, research problems, and announcements. As particular attention is paid to rapid publication, researchers will come to rely on Graphs and Combinatorics not only to keep themselves informed of current developments, but will also use it as a forum for publishing their own work.



Queen placement in (n + 1)^{s1} iteration

Springer-Verlag Berlin Heidelberg New York London Paris Tokyo Hong Kong

Heidelberger Plate 3 D-1000 Retin 3 175 Fifth Sve. New York Ny 10010, USA 278 Lurke Street, Bedford MK40 3HU, England 26 rue des Carmes 1-75005 Paris 1734 Hongo Schome Burkovski Tokso H3 Japan Citicory Centre Room 1603 18 Whitfield Road, Causeway Bay Hong Kong

Subscription information:

ISSN 0911-0119 Title No. 373

1989, Volume 5 (4 issues) DM 348,- plus carriage charges: FRG DM 7,28; other countries DM 12,-

Subscriptions and sample copy requests can be placed with your bookseller or by writing to Springer-Verlag at one of the addresses shown below.

Springer

Mathematical Physics

Chief Editor A. Jaffe, Cambridge, MA

Editorial Board M. Aizenman, New York, NY

L. Alvarez-Gaumé, Genève

H. Araki, Kyoto

A. Connes, Bures-sur-Yvette

J.-P. Eckmann, Genève

M. E. Fisher, College Park, MD

J. Fröhlich, Zürich

K. Gawedzki. Bures-sur-Yvette

J. L. Lebowitz, New Brunswick, NJ

J. Mather, Princeton, NJ

G. Parisi, Roma

B. Simon, Pasadena, CA

Ya. G. Sinai, Moscow

T. Spencer, Princeton, NJ

S.-T. Yau, Cambridge, MA

Advisory Board

M. F. Atiyah, Oxford

F. Hirzebruch, Bonn

G. 't Hooft, Utrecht

R. Schrieffer, Santa Barbara, CA

I. Singer, Cambridge, MA

C. N. Yang, Stony Brook, NY