### **Instructions to Authors**



### A. General

In upper right corner of title page write by hand "For CMP".

Manuscripts should be submitted in duplicate. They should preferably be written in English; papers in French or German are also accepted.

Manuscripts must be in their final form, typed on one side of each sheet only, with double spacing and wide margins. Formulae should be typewritten whenever possible. Mimeographed copies are not acceptable unless clearly legible.

Please include a "Note for the Printer" explaining markings used. See suggestion overleaf.

To speed up publication, authors will receive **only one set of proofs:** provisionally numbered page proofs. Authors are requested to correct typographical errors only; they will be charged for corrections involving changes, additions or deletions to the original manuscript.

Equations should be typewritten whenever possible. Even if you use a sophisticated typewriter, some parts of your manuscript will have to be marked to avoid misunderstandings and mistakes. If there is no difference in size, special attention should be given to the placing of subscripts and superscripts so that they are recognizable as such. Please avoid multilevel formulas, subscripts, or superscripts, whenever possible (see overleaf).

Diagrams should be submitted on separate sheets, not included in the text. They should be drawn in Indian ink in clean uniform lines, the whole about twice the size of the finished illustration. Inscriptions should allow for the figure 1, for example, to be about 2 mm high in the final version (i.e. 4 mm for reduction  $\times \frac{1}{2}$ ). The author should mark in the margin of the manuscript where diagrams may be inserted.

Footnotes, other than those which refer to the title heading, should be numbered consequently and placed at the foot of the page to which they refer (not at the end of the article).

Please give on the first page of the manuscript a running head (condensed title), which should not exceed 70 letters including spaces.

References to the literature should be listed at the end of the manuscript. The following information should be provided for journal articles: names and initials of all authors, name of the journal, volume, first and last page numbers and year of publication. It is suggested that authors give complete titles of articles referred to. References to books should include name(s) of author(s), full title, edition, place of publication, publisher and year of publication.

### Examples

Haag, R., Swieca, J.A.: When does a quantum field theory describe particles? Commun. Math. Phys. 1, 308–320 (1965)

Glimm, J., Jaffe, A.: Quantum physics. A functional integral point of view. Berlin, Heidelberg, New York: Springer 1981

### B. Marking

### 1. Text

The words "Theorem", "Lemma", "Corollary", "Proposition" etc. are normally printed in boldface, followed by the formulation in italics (to be underlined by the author in the manuscript)

The words "Proof", "Remark", "Definition", "Note" etc are printed in italics with the formulation in ordinary typeface

Words or sentences to be set in italics should be marked by single underlining

### 2. Formulas

Letters in formulas are normally printed in italics, figures in ordinary typeface

It will help the printer if in doubtful cases the position of indices and exponents is marked thus:  $b \, {}_{\uparrow}$ ,  $a \, {}^{\downarrow}$  Spacing of indices and exponents must be specially indicated  $(A_{mn}^{n})^m$  otherwise they will be set  $(A_{mn}^{nm})$  Underlining for special alphabets and typefaces should be done according to the following code

single underlining: small letter double underlining: capital letter

brown: boldface headings, boldface letters in formulas

yellow: upright

(abbreviations e.g. Rc, Im, log, sin, ord, id, lim, sup, etc.)

red: Greek
blue: Gothic
green: Script

violet: the numeral 1, and zero (to distinguish them from the small letter l and the

capital letter O)

orange: Special Roman The following are frequently confused:

 $\cup$ , u, (), U;  $\circ$ , o, o, o;  $\times$ , x, X,  $\kappa$ ;  $\vee$ , v, v;  $\theta$ ,  $\Theta$ ,  $\phi$ ,  $\phi$ ,  $\Phi$ ,  $\theta$ ;  $\psi$ ,  $\Psi$ ;  $\varepsilon$ ,  $\epsilon$ 

 $a', a^1$ ; the symbol a and the indefinite article a;

also the handwritten Roman 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 them in some way

### C. Examples

### 1. Special alphabets or typefaces

Script A, B, C, D, E, F, G, H, J, J, K, L, M, N, O, P, 2, R, P, T, U, V, W, X, Y, L

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, x

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

Gothic  $\mathfrak{A}, \mathfrak{B}, \mathfrak{C}, \mathfrak{D}, \mathfrak{E}, \mathfrak{F}, \mathfrak{G}, \mathfrak{H}, \mathfrak{H}, \mathfrak{H}, \mathfrak{R}, \mathfrak{L}, \mathfrak{M}, \mathfrak{N}, \mathfrak{D}, \mathfrak{P}, \mathfrak{D}, \mathfrak{R}, \mathfrak{S}, \mathfrak{I}, \mathfrak{U}, \mathfrak{B}, \mathfrak{K}, \mathfrak{P}, \mathfrak{J}$ 

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

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

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

Special Roman A, B, C, ID, E, IF, G, IH, II, J, IK, IL, M, N, O, IP, Q, IR, S, IT, U, V, W, X, Y, Z, 1

Greek  $\Gamma, \Delta, \Theta, \Lambda, \Xi, \Pi, \Sigma, \Phi, \Psi, \Omega$ 

 $\alpha, \beta, \gamma, \delta, \varepsilon, \zeta, \eta, \theta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, \rho, \pi, \rho, \sigma, \tau, \nu, \phi, \phi, \chi, \psi, \omega$ 

### 2. Notations

preferred form	instead of	preferred form	instead of
$A^*, \tilde{b}, \gamma', \mathbf{v}$	$ ilde{A}, \hat{b}, \check{\gamma}, ec{v}$	$f\colon A\to B$	$A \xrightarrow{f} B$
lim sup, lim inf	lim, <u>lim</u>		•
inj lim, proj lim	$\underset{x^2+y^2}{\underline{\lim}}$	$\cos(1/x)$	$\cos\frac{1}{x}$
$\exp\left(-(x^2+v^2)/a^2\right)$	$e^{-\frac{x^2+y^2}{a^2}}$	$\overline{(a+b/x)^{1/2}}$	$\sqrt{a+\frac{b}{a+b}}$
$f^{-1}$	$\overline{f}^{1}$		$\sqrt{a+\frac{1}{x}}$

Authors of this journal can benefit from library and photocopy fees collected by VG WORT if certain conditions are met If an author lives in the Federal Republic of Germany or in West Berlin, it is recommended that he contact Verwertungsgesellschaft WORT, Abteilung Wissenschaft, Goethestrasse 49, D-8000 München 2, for detailed information

## A new series in Springer-Verlag's mathematics program

# Springer Series in Computational Mathematics

Editorial Board: R. Graham, J. Stoer, R. Varga

Computational Mathematics is a series of outstanding books and monographs which study the applications of computing in numerical analysis, optimization, control theory, combinatorics, applied function theory, and applied functional analysis The connecting link among these various disciplines will be the use of high-speed computers as a powerful tool

Volume 1

### **QUADPACK**

A Subroutine Package for Automatic Integration By R. Piessens, E. de Doncker-Kapenga, C. W. Überhuber, D. K. Kahaner

1983 26 figures. VIII, 301 pages DM 54,-; approx US \$ 21 40 ISBN 3-540-12553-1

Contents: Introduction. – Theoretical Background. – Algorithm Descriptions. – Guidelines for the Use of QUADPACK. – Special Applications of QUADPACK. – Implementation Notes and Routine Listings – References

QUADPACK presents a program package for automatic integration covering a wide variety of problems and various degrees of difficulty.

After a theoretical explanation of the quadrature methods, the algorithms used by the integrators are described, providing a detailed outline of the automatic integration strategies. The results of studies for a set of parameters reveal efficiency and adequacy for wide ranges of problems. Applications are discussed for solving more complex problems, including double integration, computation of the Hankel transform, and inversion of the Laplace transform

Apart from the explanation of the theory, the book includes the routine listings, the user's manual, and many detailed numerical examples and sample programs. The documentation for use of the package is readable and clear for novice users. With the presentation of the mathematical methods and algorithms, however, some background in the area is assumed.

### Forthcoming titles:

E. Allgower, K. Georg

Continuation Methods for Numerically Solving Nonlinear Systems of Equations

ISBN 3-540-12760-7

W. Hackbusch

**Multi-Grid Methods** 

ISBN 3-540-12761-5

A. Iserles

Numerical Analysis of Differential Equations

ISBN 3-540-12762-3

J. Rice, R. F. Boisvert

Solving Elliptic Problems Using Ellpack

ISBN 3-540-90910-9

N.Z.Shor

Methods for Minimization of Non-Differentiable Functions and Their Applications

ISBN 3-540-12763-1



# Springer-Verlag Berlin Heidelberg New York Tokyo

Tiergartenstr 17, D-6900 Heidelberg, or 175 Fifth Ave, New York, NY 10010, USA, or 37-3, Hongo 3-chome, Bunkyo-ku, Tokyo 113, Japan

# Mathematical Physics

Chief Editor A. Jaffe, Cambridge, MA

Editorial Board H. Araki, Kyoto

J. Fröhlich, Zürich

R. Haag, Hamburg

S. Hawking, Cambridge

O. Lanford, Bures-sur-Yvette

J. Lascoux, Palaiseau

J. L. Lebowitz, New Brunswick, NJ

G. Mack, Hamburg

J. Mather, Princeton, NJ

L. Nirenberg, New York, NY

K. Osterwalder, Zürich

B. Simon, Pasadena, CA

Ya. G. Sinai, Moscow

T. Spencer, New York, NY

R. Stora, Geneva

S.-T. Yau, Princeton, NJ

Advisory Board M. F. Ativah, Oxford

A. Connes, Bures-sur-Yvette

G. 't Hooft, Utrecht

I. Singer, Berkeley, CA

C. N. Yang, Stony Brook, NY

Responsible for Advertisements

Springer-Verlag Printers: Printed in Germany E Lückermann, G. Sternberg, Kurfürstendamm 237, D-1000 Berlin Telephone: (0 30) 8 82 10 31, Telex 01-85 411
Berlin 'Heidelberg New York Tokyo
Brühlsche Universitätsdruckerei, Giessen
© Springer-Verlag GmbH & Co KG Berlin Heidelberg 1983
Das Heft enthält eine Beilage des Springer-Verlages
Berlin Heidelberg New York Tokyo