Instructions to Authors

Communications in Mathematical Physics

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: $b^{\wedge}_{j}$, $a^{\vee}_{i}$.
Spacing of indices and exponents must be specially indicated ($A_{m\ n}^{n\ m}$) 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:

$\cup, \mathsf{u}, \bigcup, U$; $\circ, o, O, 0$; $\times, x, X, \kappa$; $\vee, v, \nu$; $\theta, \Theta, \phi, \varphi, \Phi, \emptyset$; ψ, Ψ; $\varepsilon, \in$;

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	$\mathscr{A}, \mathscr{B}, \mathscr{C}, \mathscr{D}, \mathscr{E}, \mathscr{F}, \mathscr{G}, \mathscr{H}, \mathscr{I}, \mathscr{J}, \mathscr{K}, \mathscr{L}, \mathscr{M}, \mathscr{N}, \mathscr{O}, \mathscr{P}, \mathscr{Q}, \mathscr{R}, \mathscr{S}, \mathscr{T}, \mathscr{U}, \mathscr{V}, \mathscr{W}, \mathscr{X}, \mathscr{Y}, \mathscr{Z}$
	$a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z$
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	$\mathfrak{A}, \mathfrak{B}, \mathfrak{C}, \mathfrak{D}, \mathfrak{E}, \mathfrak{F}, \mathfrak{G}, \mathfrak{H}, \mathfrak{I}, \mathfrak{J}, \mathfrak{K}, \mathfrak{L}, \mathfrak{M}, \mathfrak{N}, \mathfrak{O}, \mathfrak{P}, \mathfrak{Q}, \mathfrak{R}, \mathfrak{S}, \mathfrak{T}, \mathfrak{U}, \mathfrak{V}, \mathfrak{W}, \mathfrak{X}, \mathfrak{Y}, \mathfrak{Z}$
	$\mathfrak{a}, \mathfrak{b}, \mathfrak{c}, \mathfrak{d}, \mathfrak{e}, \mathfrak{f}, \mathfrak{g}, \mathfrak{h}, \mathfrak{i}, \mathfrak{j}, \mathfrak{k}, \mathfrak{l}, \mathfrak{m}, \mathfrak{n}, \mathfrak{o}, \mathfrak{p}, \mathfrak{q}, \mathfrak{r}, \mathfrak{s}, \mathfrak{t}, \mathfrak{u}, \mathfrak{v}, \mathfrak{w}, \mathfrak{x}, \mathfrak{y}, \mathfrak{z}$
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	$\mathbb{A}, \mathbb{B}, \mathbb{C}, \mathbb{D}, \mathbb{E}, \mathbb{F}, \mathbb{G}, \mathbb{H}, \mathbb{I}, \mathbb{J}, \mathbb{K}, \mathbb{L}, \mathbb{M}, \mathbb{N}, \mathbb{O}, \mathbb{P}, \mathbb{Q}, \mathbb{R}, \mathbb{S}, \mathbb{T}, \mathbb{U}, \mathbb{V}, \mathbb{W}, \mathbb{X}, \mathbb{Y}, \mathbb{Z}, \mathbb{1}$
Greek	$\Gamma, \Delta, \Theta, \Lambda, \Xi, \Pi, \Sigma, \Phi, \Psi, \Omega$
	$\alpha, \beta, \gamma, \delta, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \lambda, \mu, \nu, \xi, o, \pi, \rho, \sigma, \tau, \upsilon, \varphi, \phi, \chi, \psi, \omega$

2. Notations

preferred form	instead of
$A^*, \tilde{b}, \gamma', \mathbf{v}$	$\bar{A}, \hat{b}, \check{\gamma}, \vec{v}$
lim sup, lim inf	$\overline{\lim}, \underline{\lim}$
inj lim, proj lim	$\varinjlim, \varprojlim$
$\exp(-(x^2+y^2)/a^2)$	$e^{-\frac{x^2+y^2}{a^2}}$
f^{-1}	$\overset{-1}{f}$

preferred form	instead of
$f\colon A \to B$	$A \xrightarrow{f} B$
$\dfrac{\cos(1/x)}{(a+b/x)^{1/2}}$	$\dfrac{\cos\frac{1}{x}}{\sqrt{a+\frac{b}{x}}}$

Ph. Blanchard
E. Brüning

Direkte Methoden der Variationsrechnung

Ein Lehrbuch

1982. 7 Abbildungen. Etwa 300 Seiten.
Gebunden DM 98,–, S 686,–
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Inhaltsübersicht: Einige Bemerkungen zur Geschichte und zu den Zielen der Variationsrechnung. – Direkte Methoden der Variationsrechnung. – Differentialrechnung in Banach-Räumen. – Extrema differenzierbarer Funktionale. – Extrema unter Nebenbedingungen (Methode der Lagrange-Multiplikatoren). – Klassische Variationsprobleme. – Variationstheoretische Behandlung linearer Rand- und Eigenwert-Probleme. – Nicht-lineare elliptische Randwert-Probleme und monotone Operatoren. – Nicht-lineare elliptische Eigenwert-Probleme. – Thomas-Fermi-Theorie. – Anhang: Banach-Räume. Stetigkeit und Halbstetigkeit. Kompaktheit in Banach-Räumen. Die Sobolev-Räume $W^{m,p}(\Omega)$. – Sachverzeichnis.

Die Vielfalt der Anwendungen der Variationsrechnung verbirgt oft die gemeinsame einfache Basis.
Ziel dieses Lehrbuches ist es, die funktionsanalytischen Grundlagen herauszuarbeiten und ihre Konsequenzen in zahlreichen klassischen und modernen Anwendungen (Lagrange-Mechanik, klassische Feldtheorie, Thomas-Fermi-Theorie, lineare und nicht-lineare elliptische Rand- und Eigenwertprobleme, parabolische Randwertprobleme, die Stokes-Gleichungen der Hydrodynamik) darzustellen. Es bietet einen einfachen Zugang zu einem zentralen Arbeitsgebiet der mathematischen Forschung und führt in einigen Teilgebieten an die jüngsten Forschungsergebnisse heran. Umfassend und einheitlich wird der Satz von Ljusternik über die Methoden der Lagrange-Multiplikatoren behandelt, wobei die Nebenbedingung durch eine differenzierbare Abbildung zwischen unendlich-dimensionalen Banach-Räumen gegeben ist. Um die Einfachheit und den intuitiven Charakter der Grundideen herauszustellen und eine klare Darstellungsform zu erreichen, sind viele technische Einzelheiten in vier Anhängen zusammengefaßt worden.

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