

## NOTES FOR AUTHORS

Papers to be considered for publication should be sent to the Editorial Secretary, The Royal Society of Edinburgh, 22 George Street, Edinburgh EH2 2PQ, Scotland.

A paper by more than one author must be submitted with a statement, signed by each author, to the effect that the paper in its entirety is approved by the joint authors and naming the author who will be responsible for correspondence with the Society.

Authors will receive fifty (50) offprints free of charge, this number to be shared between joint authors. Additional offprints may be obtained, in units of fifty, at a fixed scale of prices given on a form which will be attached to the proof.

In view of the high cost of publication, authors must prepare their papers as concisely as possible. Manuscripts should be submitted in triplicate and preferably should be typewritten on one side of A4 paper, double spaced with adequate margins. Authors are advised to retain a copy of their papers as the Society cannot accept responsibility for any loss.

Every paper must be accompanied by a Synopsis, in general not exceeding two hundred words, which will be printed in small type at the beginning of the paper.

References within the text should be indicated by bold numbers in square brackets, e.g. [2] or [3, p. 167]. For style of references at end of text, see recent issues of *Proceedings A*.

Authors should ensure that punctuation carries through the mathematics in the proper manner. The use of hyphens should be consistent. In the text avoid such abbreviations as: iff, w.r.t., a.e.,  $\forall$ ,  $\exists$ , and thm.

Footnotes should be avoided. Headings should not be underlined. Every effort should be made to avoid complicated subscripts, superscripts, ranges of summation and integration. Horizontal fraction signs should normally be avoided: use either solidus signs / or negative exponents. Replace  $e^{(\dots)}$  by  $\exp[\dots]$  if the expression in parenthesis is complicated. Simple formulae should *not* be displayed unless they require a formula number. Use the prime ' or  $d/dx$ , but preferably not a dot, to denote ordinary differentiation. If possible use subscripts to denote partial differentiation of  $\partial/\partial x$  etc. Bars reaching over several letters should be avoided: use  $\sqrt{()}$  or the exponent 1/2 for the square root. Sub-subscripts and super-superscripts should be avoided if possible: bars and other devices over indices cannot be supplied.

Note that confusion very often arises between 1 (one) and  $l$  (ell); 0 (zero) and  $O$  (Capital oh);  $\circ$  (composition) and  $o$  (lower case oh);  $x$  and  $\times$ ;  $U$  and  $\cup$ ;  $c$  and  $\subset$ ;  $\in$  (belongs to) and  $\epsilon$  (epsilon);  $\emptyset$  (empty set) and  $\phi$  (phi);  $;$  and comma  $,$ ; prime ' and  $^1$ ;  $K$  and  $\kappa$ ;  $p$  and  $\rho$ ;  $w$  and  $\omega$ ;  $\sum$  (summation) and  $\Sigma$  (capital sigma);  $\prod$  (product) and  $\Pi$  (capital pi);  $v$  (lower case vee) and  $\nu$  (Greek nu);  $a$  (lower case a) and  $\alpha$  (Greek alpha);  $y$  (lower case y) and  $\gamma$  (Greek gamma). Please provide pencilled indicators in the margin where necessary. Where capitals and lower case of the same shape have to be printed, please indicate accordingly. Show italics by single underlining (except in the formulae which are set up normally in italics), bold face/Clarendon by wavy underlining and Greek by red underlining.

The statement of theorems, lemmas, et cetera, will be printed in italics and should be underlined. In definitions key words only should be in italics.

Equations should be indicated by numbers in parentheses in the right-hand margin.

Proofs of papers will be sent to the author. The cost of *authors' corrections in excess of five per cent* of the printers' charge for the setting of a particular paper will be charged to the author.

### Copyright

© 1982 The Royal Society of Edinburgh and the authors of individual papers.

It is the policy of the Royal Society of Edinburgh not to charge any royalty for the production of a single copy of any one article made for private study or research. Requests for the copying or reprinting of any article for any other purpose should be sent to the Royal Society of Edinburgh, 22/24 George Street, Edinburgh EH2 2PQ

---

---

CONTENTS

M. J. ESTEBAN and P. L. LIONS	
Existence and non-existence results for semilinear elliptic problems in unbounded domains	1
P. C. DAS and UMA SHANKER PRASAD	
Adjoint and self-adjointness for a differential operator with a varying structure	15
N. G. KAZAKOVA and D. D. BAINOV	
On the solvability of a linear boundary value problem for a class of neutral type functional differential equations	25
V. G. ANGELOV and D. D. BAINOV	
Bounded solutions of functional differential equations of the neutral type with infinite delays	33
ADRIAN M. RILEY	
Balanced big Cohen-Macaulay modules and free extensions of local rings	41
PAUL BINDING	
Multiparameter definiteness conditions II	47
A. D. SANDS	
On $M$ -nilpotent rings	63
K. J. BROWN and R. SHIVAJI	
Simple proofs of some results in perturbed bifurcation theory	71
W. D. MUNN	
Semiprimitivity of inverse semigroup algebras	83
REINHARD REDLINGER	
Über die $C^2$ -Kompaktheit der Bahn von Lösungen semilinearer parabolischer Systeme	99
J. F. T. HARTNEY	
A radical for near-rings	105
J. E. A. DUNNAGE	
Inequalities for the tail probabilities of weighted sums of independent random variables with applications to rates of convergence to zero	111
M. A. ARMSTRONG	
Lifting homotopies through fixed points	123
D. F. MCGHEE	
Multiparameter problems and joint spectra	129
J. W. BRUCE	
Counting singularities	137
NGUYEN XUAN DUNG	
Essential self-adjointness and self-adjointness for even order elliptic operators	161