

A guide to editing T_EX articles for the Royal Society of Edinburgh

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A brief guide is presented for preparing articles for submission to the Royal Society of Edinburgh *Proceedings* Series A journal.

1. Introduction

This guide is intended for authors preparing articles for submission to the *Proceedings of the Royal Society of Edinburgh*. The guide outlines the basic structure of the L^AT_EX file, and also provides some of the elements of house style and preferred solutions to frequently encountered typographical problems. It is *not* intended as an introduction to the T_EX typesetting system; authors should consult Lamport and Knuth for this.

There are three required packages—`amsmath.sty`, `amssymb.sty` and `amsthm.sty`—which are widely available and which are needed for this class file to run.

2. The preamble

Every L^AT_EX file begins with a `\documentclass` command:

```
\documentclass{rsepublic}
```

which is followed by five lines giving various bibliographic details:

```
\Year{1999}  
\Volume{129}  
\Paper{A99199}  
\PageRange{\pageref{firstpage}--\pageref{lastpage}}  
\setcounter{page}{1}
```

Local macro definitions may be included next, before the `\begin{document}` command, although it is advisable to keep all such definitions to a minimum for simplicity.

3. The title page

Every title page displays the article’s full title, its authors and their full postal addresses, and the abstract.

After the preamble the general form is:

```

\begin{document}

\title[Short title]{Full title}

\author[Short author names]{\textbf{Full author names in bold}}
\\
Full postal addresses of all authors}

\MSdates[‘Received date’]{‘Accepted date’}

\label{firstpage}
\maketitle

```

- The short title, which is usually less than around 40 characters, is used as the recto running head.
- The short author names comprise initials and surnames, or, if these total more than around 40 characters, the first author followed by ‘and others’. This argument is used as the verso running head.
- The full author names, if given, are retained on the title page.
- Give the name of any country in English (e.g. Republic of Ireland, not Eire).
- The only allowed abbreviations are USA and UK; ‘Scotland’, ‘Wales’, ‘England’, etc., are not allowed.
- There is no comma between town and postcode, or between state and zip code.
- Abbreviate American states, i.e. CA for California, etc.
- References to grants received, etc., should appear in the acknowledgements.

The abstract follows immediately after the affiliation, and appears within the `abstract` environment:

```

\begin{abstract}
:
\end{abstract}

```

4. Structure of the remaining article

After the title page and abstract there is usually an introduction, and several more sections before the list of references. There may also be an acknowledgements and one or more appendixes. The most general structure is:

```

\section{}
:
\subsection{}
:

```

```

\subsubsection{}
:
\ack
:
\appendix{}
:
\subsection{}
:
\subsubsection{}
:
\begin{thebibliography}
:
\end{thebibliography}
\label{lastpage}
\end{document}

```

Some of these elements are optional and some will usually be repeated; for example, almost every paper comprises several sections, but relatively few contain an appendix.

5. Floating bodies: figures and tables

The `figure` and `table` environments are implemented as described in the *L^AT_EX* manual to provide consecutively numbered floating inserts.

5.1. Figures

The usual figure arrangement is:

```

\begin{figure}
<PostScript inclusion special>
\caption{}
\end{figure}

```

Authors who cannot include PostScript figures should omit the inclusion line.

5.2. Tables

The basic structure of all tables is:

```

\begin{table}
\caption{<title>}
\longcaption{<long description>}
\begin{tabular}{<column alignments>}
\hline
<headings>\\
\hline
<body of table>
\hline
\end{tabular}
\end{table}

```

- The title should be short, like that of a section heading; there is no full stop at the end. Any long description should be separated from the title and included in the `\longcaption` command, which sets the argument in parentheses and as a paragraph below the title.
- Headings are usually centred, and are not capitalized.

6. Theorem and proof environments

Several theorem-like environments, e.g. theorem, lemma, corollary, proposition, are provided and need not be redefined:

```
\begin{theorem}
:
\end{theorem}
```

Theorem 6.1. *Let E be an orbifold C^* -bundle over the closed \mathbb{Z}^c orbifold Q and let D be the generalized Dirac operator on Q with coefficients in E .*

The proof should be included within the following environment:

```
\begin{proof}
:
\end{proof}
```

Proof. Use $K_\lambda \geq S_\lambda$ to translate combinatorics into λ -terms. For the converse, translate $\lambda x \dots$ by $[x \leq y] \dots$ and use induction and the lemma. \square

7. Elements of mathematical editing

The following commonly used macros are defined at the end of `rsepublic.cls` and should be used in math mode whenever the entity in parentheses is required:

- `\rd` (differential)
- `\re` (exponential)
- `\ri` (imaginary number, $i = \sqrt{-1}$)
- `\Real` (real part)
- `\Imag` (imaginary part)
- `\sgn` (sign)
- `\const` (constant)

For example, $e^{-ikr \cos s} ds$.

7.1. Equations

Preferred equation environments are those defined by the `amsmath` package, which is one of the required packages for the class file. For example, `align` is preferred to `eqnarray`.

8. Elements of copy-editing

8.1. Spelling, capitalization and abbreviations

- Use English spelling throughout (follow the *OED* or *The Collins English Dictionary*): e.g.

ageing	analogue	analyse	behaviour
centre	centred	characterize	crystallize
favour	focused	focusing	formulas
generalize	modelled	modelling	neighbour
parametrize	polarize	realize	recognize
vapour	vaporize		

Note the common endings: *-ize* and *-yse* rather than *-ise* and *-yze*.

- Remove spurious capitalization; for example, in the text use ‘figure 1’, ‘table 2’, ‘equation (3.4)’, ‘theorem 5.6’, ‘preposition 7.8’, ‘the appendix’, i.e. no capitals (except, of course, when starting a sentence). However, when a specific appendix is referenced, the style is, e.g., ‘Appendix A’. Also note that these words should always be given in full.
- Replace ‘section’ by the symbol (§), except when it begins a sentence.
- Use capitals for words derived from names—Cartesian, Gaussian, Hamiltonian, etc.—except for the following: abelian, boson, fermion, ohmic, voltaic, coulombic. The journal will respect conventional use and not necessarily impose a rigid style.
- For trade names (e.g. Teflon) follow Chambers.
- Full caps should be used for all acronyms, which should be defined on first use (e.g. face-centred cubic (FCC)). Since the abstracts are published separately, this rule applies to both the abstracts and the main body of the text.
- Common abbreviations are: ‘cf.’, ‘e.g.’, ‘etc.’, ‘i.e.’ Note that ‘etc.’ is always preceded and followed by a comma except where it ends a sentence.

8.2. Em rules and en rules

- A pair of em rules (or dashes) is used to indicate asides and parentheses, in a way similar to commas, but forming a more distinct break. (Commas are preferred for short parenthetical remarks.) No spaces should be put between the em rules and their associated asides.
- An en rule has the following uses:
 - to indicate a range of numbers, e.g. ‘20–100 keV’ (but note the expression, ‘from 20 to 100 keV’; avoid ‘from 20–100 keV’);
 - between interactions, e.g. photon–photon;
 - with log–log (often seen when describing the axes of a figure);
 - between linked names, e.g. Hartree–Fock.

- An en rule should not be used in ‘between 20–100 keV’; ‘between 20 and 100 keV’ is the preferred form.

8.3. Miscellaneous details

- Dates are expressed in the form, ‘day month year’: e.g. 9 April 1999.
- The plural *data* is far more common than its singular form, and should always be treated as a plural, i.e. ‘data *are* . . .’ is correct while ‘data *is* . . .’ is incorrect. Some words, on the other hand, appear to be plural but are treated as singular: dynamics, statistics, mechanics.
- Single and not double quotes should be used.
- Retain, or put in if missing, the accents for proper names such as Schrödinger, Poincaré, etc.

9. References

9.1. In the text

The `\cite` command should be used to produce citations in the text (but avoid explicit citations in the abstract). Multiple citations should be gathered within a single `\cite` command: e.g. `\cite{1,2,3}`.

9.2. In the list

- The list of references appears at the end of the article and is contained within the environment:

```
\begin{thebibliography}
:
\end{thebibliography}
```

Each reference is begun with a `\bibitem`, and all contain at least one name and a year:

- 1 K. Gopalsamy. Stability criteria for the linear system $\dot{X}(t) + A(t)X(t - \tau) = 0$ and an application to a non-linear system. *Int. J. System Sci.* **21** (1990), 1841–1853.
- 2 K. Gopalsamy. *Stability and oscillations in delay differential equations of population dynamics* (Dordrecht, The Netherlands: Kluwer, 1992).
- 3 M. W. Hassard, N. D. Kazarinoff and Y. H. Wan. *Theory and applications of Hopf bifurcation*. London Mathematical Society Lecture Notes Series, vol. 41 (Cambridge University Press, 1981).

Note that all titles should be reproduced as published. Spellings should not be altered, e.g. ‘non-linear’ is retained although journal style is ‘nonlinear’.

- The list is alphabetical.
- Each author’s name comprises the (spaced) initials followed by the surname, with commas separating each author, and a full stop after the final author name.

- The abbreviations for ‘editor’ and ‘editors’ are ‘ed.’ and ‘eds’.
- The abbreviation for ‘Junior’ is ‘Jr’.

This structure is common to all entries in the list. The remaining bibliographic details follow the year and can take a variety of forms.

9.2.1. *Journals*

- The title of the article follows the author(s), is set in roman and lower case, and is ended with a full stop.
- The journal is abbreviated and set in italics.
- The volume is set in bold roman, followed by the year in parentheses, a comma and the page range, with the pages joined with an en-rule.

1 O. Pironneau. On optimum profiles in Stokes flow. *J. Fluid Mech.* **59** (1973), 117–128.

- Some journals have an additional letter in their title; most of these precede the volume number, but the letters of two journals *follow* the volume number:

1 ... *Phys. Rev. B* **59** (1973), 117–128.
 2 ... *Proc. R. Soc. Edinb. A* **123** (1993), 45–58.
 3 ... *Physica* **59A** (1973), 117–128.
 4 ... *Phys. Lett.* **59A** (1973), 11 789–12 108.

Note that a thinspace `\`, separates the letter and volume number when the letter comes first, and is also used in five- or higher-digit numbers, e.g. 11 789.

9.2.2. *Books*

- The title of the book follows the author(s), is set in italics and lower case, and is followed by (optional) a page range, chapter, volume, edition number, or editors and (mandatory) the publisher, place of publication and year. entry.

1 R. Témam. *Navier–Stokes equations* (Amsterdam: North-Holland, 1977).
 2 J.-P. Serre. *Trees* (New York: Springer, 1980).

- The title of a contribution to a multi-author work is set in roman and lower case, and ended with a full stop. This is followed by ‘In’ and the title of the work in italics and lower case, followed by the editor in parentheses and the page range.

1 H. Bass. Group actions on non-Archimedean trees. In *Arboreal group theory* (ed. R. C. Alperin). MSRI Publications, vol. 19, pp. 69–131 (New York: Springer, 1991).

- References to contributions to conference proceedings are dealt with in a similar way.

- 1 W. N. Everitt, M. Möller and A. Zettl. Discontinuous dependence of the n -th Sturm–Liouville eigenvalue. In *General Inequalities 7: Proc. Int. Conf. on General Inequalities 7, Oberwolfach, 1995* (ed. C. Bandle, W. N. Everitt, L. Losonczi and W. Walter). International Series of Numerical Mathematics, vol. 123, pp. 147–150 (Basel: Birkhauser, 1997).

- Note that the conference title is in italics and retains the capitals, and includes the place and date.

- Named series:

- 1 J. Weidmann. *Spectral theory of ordinary differential operators*. Lecture Notes in Mathematics, vol. 1258 (Heidelberg: Springer, 1987).

9.2.3. Reports, memoranda, preprints, theses, etc.

- These are set as follows, using roman and lower case throughout for titles:

- 1 X. He and K. Gopalsamy. Global stability in n -species competition modelled by ‘pure-delay-type’ systems. I. Autonomous case. Preprint, 1995.
- 2 K. Jörgens. Spectral theory of second-order differential operators. Notes from lectures delivered at Aarhus Universitet, 1962/63. Matematisk Institut, Aarhus Universitet, Aarhus, Denmark, 1964.

9.3. Miscellaneous

- Translations are included in parentheses:

- 1 O. A. Ladyzhenskaya. *The mathematical theory of viscous incompressible flow*, 2nd edn (English transl.) (New York: Gordon and Breach, 1969).

- Personal communications should *not* appear in the list; the citation in the text is the only reference: (L. M. Pecora 1989, personal communication).
- Unpublished work should also *not* appear in the list; the citation in the text is the only reference: (L. M. Pecora 1989, unpublished work).

Appendix A. Units and symbols for units

The International System of Units (SI) is used. Six base units are given in table 1 and fifteen derived units are given in table 2.

- Symbols for units should be in roman type in all contexts and separated from each other and from the numeral by a fixed thin space, given by the macro `\3`.
- SI prefixes, given in table 3, precede the SI unit: ‘mg’, ‘ns’, ‘ μ A’, ‘MHz’, ‘kPa’. Note there is no space separating the prefix from the unit.
- The sloping letter μ for the prefix ‘micro-’ will be replaced by the upright letter during typesetting.
- Note the preferred spelling of certain units: ‘metre’, ‘millimetre’, ‘gram’, ‘kilogram’, etc.

Table 1. Names and symbols for the SI base units

physical quantity	name	symbol
length	metre	m
mass	kilogram	kg
time	second	s
electric current	ampere	A
thermodynamic temperature	kelvin	K
amount of substance	mole	mol

Table 2. Names and symbols for SI derived units

physical quantity	name	symbol	definition
energy	joule	J	$\text{m}^2 \text{kg s}^{-2}$
force	newton	N	m kg s^{-2}
pressure	pascal	Pa	$\text{m}^{-1} \text{kg s}^{-2}$
power	watt	W	$\text{m}^2 \text{kg s}^{-3}$
electric charge	coulomb	C	A s
electric potential difference	volt	V	$\text{m}^2 \text{kg s}^{-3} \text{A}^{-1}$
electric resistance	ohm	Ω	$\text{m}^2 \text{kg s}^{-3} \text{A}^{-2}$
electric conductance	siemens	S	$\text{m}^{-2} \text{kg}^{-1} \text{s}^3 \text{A}^2$
electric capacitance	farad	F	$\text{m}^{-2} \text{kg}^{-1} \text{s}^4 \text{A}^2$
magnetic flux	weber	Wb	$\text{m}^2 \text{kg s}^{-2} \text{A}^{-1}$
inductance	henry	H	$\text{m}^2 \text{kg s}^{-2} \text{A}^{-2}$
magnetic flux density	tesla	T	$\text{kg s}^{-2} \text{A}^{-1}$
frequency	hertz	Hz	s^{-1}
activity	becquerel	Bq	s^{-1}
absorbed dose	gray	Gy	J kg^{-1}

Table 3. SI prefixes

multiple	prefix	symbol	multiple	prefix	symbol
10^{-1}	deci	d	10	deca	da
10^{-2}	centi	c	10^2	hecto	h
10^{-3}	milli	m	10^3	kilo	k
10^{-6}	micro	μ	10^6	mega	M
10^{-9}	nano	n	10^9	giga	G
10^{-12}	pico	p	10^{12}	tera	T
10^{-15}	femto	f	10^{15}	peta	P
10^{-18}	atto	a	10^{18}	exa	E