

TYPESETTING MANUAL FOR THE JOURNAL ACTA POLYTECHNICA

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ABSTRACT. In this article, we explain how the documentclass `actapoly.cls` should be used in order to typeset an article to be printed in the journal.

Abstract should be a standalone, short and concise text, which can be comprised of several paragraphs. It must accurately reflect the purpose of the research, the principal results and the major conclusions. The maximum length of the abstract is 200 words. It should not contain citations, nonstandard characters or symbols and complicated mathematics.

For Keywords use 3-8 phrases which reflect the essential content of the article. Do not use obscure abbreviations.

KEYWORDS: Keyword one, keyword two, keyword three, separate the keywords with a comma.

1. INTRODUCTION

This article summarizes the way how to typeset a document in the `actapoly.cls` class and should be used in combination with the Manuscript Example.

2. FORMATTING TOOLS

2.1. TITLEPAGE

The article title is typeset using the command `\maketitle`. The following commands must be placed *before* `\maketitle`:

`\title[short title (optional)]{title text}`

— to typeset the article title. The full title has to fit in three lines of the typeset text. The optional argument should be used when the full title doesn't fit into the page headers. The class displays a warning in the case of a too long title. The title cannot begin with a formula, and formulas should be avoided as much as possible.

`\correspondingauthor[short name (optional)]{full name}{institutions}{e-mail}`

— to typeset the corresponding author. There should be exactly one corresponding author for the article. The parameter `<institutions>` should contain a list of comma-separated labels of institutions.

`\author[short name (optional)]{full name}{institutions}` — to typeset more authors. The authors are printed in the order in which they are put in the document. When there are three or more authors, please fill in the short names, which would then be used in the page headers.

`\institution{<label>}{<name>, <address>, <country>}` — to typeset the institutions. The

institutions are printed in the order in which they are put in the document. L^AT_EX will warn you in the case of an unused institution.

abstract environment — can comprise more paragraphs. The length of the abstract is limited by 1000 characters, spaces included; the formulas in the abstract are taken into account to some extent. The class displays a warning in the case of a too long abstract.

`\keywords{<keywords>}` — comma-separated list of clearly-written keywords, the list should contain 3–8 items.

The following commands placed *before* the command `\maketitle` are optional:

`\MSCclass{<primary> (up to 3 secondary)}` — for mathematical articles, use 2010 Mathematics Subject Classification [1].

`\shortauthors{<short authors names>}`

— not needed as long as the short names of the authors fit in the page header, which should always be the case since max. 4 names are printed. If further shortening is needed, use e.g. “F. Author et al.”

2.2. DOCUMENT STRUCTURE

The document should be structured into sections and optionally subsections. All sections and subsections must be numbered. The only exceptions are List of symbols, Acknowledgements and References which come unnumbered at the end of the document and

Environment	Usage
figure	Figures occupying only one column
table	Tables occupying only one column
figure*	Figures spreading on both columns
table*	Tables spreading on both columns

TABLE 1. Overview of available floating object environments, this table is made using the `table*` environment. Notice that the caption is always ended by a full stop.



FIGURE 1. Logo of the Czech Technical University in Prague.

in this order. Appendices are inserted after References with special numbering (see more details in the Manuscript Example). Acknowledgements section is optional and have to be typeset using the environment `acknowledgements`; it belongs before References.

References section should be placed after Acknowledgements and should be formatted according to the Acta Polytechnica style. Examples of references are also given in this article.

2.3. LIST OF SYMBOLS

List of symbols should be included only when necessary. It is enclosed in the environment `nomenclature`. The format of the items is `\item[unit (optional)]{symbol}{meaning}`. Unit is optional, at this place it is automatically typeset in up-right font; unit should be specified e.g. as `[cm\,s-2]` or `[cm/s2]`; for dimension-less symbols like the Reynolds number you can input `[-]`, or simply omit the unit. The symbol is automatically typeset in math-mode.

2.4. REFERENCES

There is a `BIBTEX` style `actapoly.bst` intended to be used in the submissions. In the case your article has plenty of references, you can use the style `actapoly-astro.bst`, which prints the article references in the style common for astronomical articles (only first author mentioned, article title omitted).

In the case you do not use `BIBTEX`, we ask you to make the bibliography entries as similar as those in the bibliography of this manual: books [2], book chapters [3], articles [4], web-pages [1, 5, 6], articles on arXiv [7]. The usage of DOI [4, 6] is obligatory for all bibliography items that have one; in `BIBTEX`, DOIs are entered as for instance `doi = {10.1000/182}`; if `BIBTEX` is not used, then DOIs can be entered

as `\bibdoi{10.1000/182}`, which gives: <https://doi.org/10.1000/182>

Biblatex is currently not supported.

2.5. FIGURES AND TABLES, PLACEMENT OF FLOATING OBJECTS

Figures and tables ought to be placed in the document using the environments `figure` and `table`, allowing them to float to the top of the page or to be placed on a separate page comprising only floats. These environments make their contents occupy one column only, the starred environments `figure*` and `table*` make them wider, occupying both columns. Every float has to be equipped with a caption, like in Figure 1. Note that in the twocolumn format, you often have to move the code of the floats few paragraphs back to have them at the desired page.

All tables should be preferably made using the `booktabs` package [5]. See Table 1 for an example of the usage of this package, and for the overview of the float environments.

When referring to figures and tables avoid terms like above and below. Rather, refer directly to a specific figure or table number. The final layout of the text may be different.

2.6. GRAPHICS TYPES AND QUALITY

We use `PDFLATEX` to process the files. We allow the following graphical types:

- PDF (*recommended*);
- JPG (only for photos);
- PNG (for plots and drawings);
- EPS (however, we kindly ask authors not to use the package `psfrag` since processing of such documents with `PDFLATEX` is very complicated).

We prefer drawings to be in vector format. All raster graphics (JPG, PNG) should have resolution at least 300 dpi, which is a width of approx. 1000 px in one column and 2000 px in two columns. Do not add unnecessary effects to figures (e.g. frames, borders, backgrounds, etc.). All files should be put into one zip file.

Use the command
`\includegraphics[width=\linewidth]{myfile}`
to include a graphic file.

2.7. MATHEMATICS

The narrowness of the columns often forces the displayed formulas to break into more lines. The environments `multline` or `align` can be used to achieve proper alignment, as you can see in the following example:

$$\begin{aligned} 300 &= 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 \\ &\quad + 10 + 11 + 12 + 13 + 14 + 15 + 16 + 17 \\ &\quad + 18 + 19 + 20 + 21 + 22 + 23 + 24, \end{aligned} \tag{1}$$

which illustrates `multline`. The following illustrates `align`:

$$\begin{aligned} 300 &= 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 \\ &\quad + 11 + 12 + 13 + 14 + 15 + 16 + 17 \\ &\quad + 18 + 19 + 20 + 21 + 22 + 23 + 24. \end{aligned} \tag{2}$$

Notice that the operator or the relation symbol is always *at the beginning of the line*, and that every formula is part of a sentence, therefore it has *proper punctuation*.

In the case your document contains a lot of large formulas, your article can exceptionally be typeset in one-column mode. Please, send us a draft of your paper together with the request, and we will let you know how the one-column mode can be properly activated.

2.8. PHYSICAL UNITS

Physical units are always typeset in an upright font (non-italics) and are seperated from the amount and from each other by a thin space, which is input as `\,` in the \LaTeX source code. The only exceptions are angular units (degrees, minutes, seconds) which are not preceded by a space.

For more details, see the source code of the Manuscript Example. Two special unit macros are available: `\degree` for the degree symbol $^\circ$ and `\micro` for the μ unit scale.

Separate decimal numbers with a decimal point. Do not use commas or spaces when writing long numbers (e.g. 123456.78).

2.9. FOOTNOTES

Footnotes should be kept at minimum¹.

2.10. COLUMN BALANCING

In the final version of the article, the columns on the last page will be balanced to have an equal length. Due to some limitations in \LaTeX this cannot be done automatically.

Authors do not have to care about this, we will do it manually during the final typesetting.

¹Still, when you really need them, you can use them.

3. SEVERAL REMARKS CONCERNING \LaTeX

We kindly ask you to follow these rules. This will make the final typesetting of your article easier.

- Put all your personal definitions in the preamble (before `\begin{document}`).
- Do not define shortcuts for theorems, proofs etc., e.g. `\pf` for `\begin{proof}` and `\pfe` for `\end{proof}`.
- Do not use `$$... $$` for displayed mathematics. Better use `\[... \]`.
- The class loads the package `natbib` by default and uses its `sort&compress` feature. You can disable loading this package by passing the option `[natbib=false]` to the class.
- Please follow all errors and warnings that are thrown by \LaTeX , especially those by the class `\actapoly.cls` — these indicate that there is an issue that should be solved by the authors, like too long title or abstract, missing keywords etc.

3.1. \LaTeX VERSIONS

The class is tested on \TeX live 2021 install.

In older versions of \LaTeX , it is likely that the class won't work. In such case, it is recommended to update your system to a newer version of \LaTeX .

If you find a bug in the behaviour of the class, we kindly ask you to report it to the Editor so that it can be fixed.

3.2. THIS CLASS AND ARXIV

Authors can use this class to put preprints of their articles on arXiv. For this, please use the `[arXiv]` option of the `\documentclass`.

4. SUBMISSIONS IN MICROSOFT WORD FORMAT

Acta Polytechnica accepts articles in Microsoft Word format, provided the authors follow rules described in the Manuscript Example and Word Example.

ACKNOWLEDGEMENTS

We greatly thank the creator of \TeX , professor Donald E. Knuth, who created this beautiful program to typeset his books, e.g. [2].

REFERENCES

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[3] D. E. Knuth. Running \TeX . In *The \TeX book*, chap. 23. Addison-Wesley Publishing Co., Reading, 1986.

[4] S. Chandrasekhar. On the continuous absorption coefficient of the negative hydrogen ion. Part 2. *Astrophysical Journal* **102**(3):395–401, 1945. <https://doi.org/10.1086/144770>

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[7] J. Doe. Example of an arXiv reference. [2020-08-01]. [arXiv:0000.0000v1](https://arxiv.org/abs/0000.0000v1)

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[1] American Mathematical Society. [2019-10-15], <http://www.ams.org/mathscinet/msc/msc2010.html>

[2] D. E. Knuth. *The art of computer programming. Vol. 1: Fundamental algorithms*. Second printing. Addison-Wesley Publishing Co., Reading, Mass.-London-Don Mills, Ont, 1969.

[3] D. E. Knuth. In *The T_EXbook*, chap. 23. Addison-Wesley Publishing Co., Reading, 1986.

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[7] J. Doe. [2020-08-01], [arXiv:0000.0000v1](https://arxiv.org/abs/0000.0000v1)

²This is how the bibliography should look like with `actapoly-astro.bst` style.