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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.

This is, for example, the abstract, which can comprise several paragraphs, but should not contain numbered citations and complicated mathematics.

Keywords: journals, typesetting, Acta Polytechnica, at most 5 keywords.

1. Overview

This article summarizes the way how to typeset a document in the actapoly.cls class.

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 two lines of typeset text. The length of the abstract is limited to 3 lines when typeset. 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 in 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-seperated labels.

\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. LaTeX will warn you in the case of an unused institution.

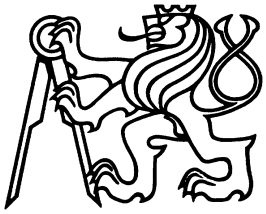

Figure 1. Logo of the Czech Technical University in Prague.

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 account to some extent. The class displays a warning in the case of a too long abstract.

\keywords{⟨*keywords*⟩} — comma-seperated list of clearly-written keywords, the list should contain 3–5 items.

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

\MSCclass{⟨*primary*⟩ (⟨*up to 3 secondary*⟩)} — for mathematical articles, 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 at most 4 names are printed. If that weren't sufficient, put something like "G. Surname at al."

2.2. Document structure

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

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.

which come un-numbered at the end of the document, and in this order.

The acknowledgements are optional and have to be typeset using the environment acknowledgements; they belong to the end of the article.

The references come after the acknowledments and should be typeset in a standard way.

2.3. List of symbols

The list of symbols should be included only when necessary. It is enclosed in the envrionment 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/s^2]; 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], articles [3], web-pages [1, 4], articles on arXiv [5], book chapters [6]. The usage of DOI [7] 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: DOI:10.1000/182.

Biblatex is currently not supported.

2.5. Figures and tables, placement of floating objects

The 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 seperate page comprising only floats. These enviroments make their contents oppupy 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 preferrably made using the booktabs package [4]. See Table 1 for an example of the usage of this package, and for the overview of the float environments.

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.

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:

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

which illustrates multline. The following illustrates align:

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

Notice that the operator or 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 and not preceded by a space. For more details, see the source code of the article example. Two special unit macros are available: `\degree` for the degree symbol ° and `\micro` for the µ unit scale.

2.9. Footnotes

Footnotes should be kept at minimum[1].

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.

3. Several remarks concerning LaTeX

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

- 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 are 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 TeXlive 2010 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.

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

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 these rules:

(1.) The authors convert the whole article to a PDF file ("printing to PDF") and enclose the PDF version together with the DOC or XDOC one.

(2.) All graphics are provided as seperate PDF/PNG/JPG files.

(3.) The authors include abstract, keywords, e-mail of one corresponding author and all affiliations in the submission.

Acknowledgements

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

References

[1] American Mathematical Society. 2010 mathematics subject classification. `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.

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[4] S. Fear, D. Els. CTAN web interface: Package booktabs. [2012-06-24], `http://www.ctan.org/pkg/booktabs`.

[5] J. Doe. Example of an arXiv reference. `arXiv:0000.0000v1`.

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

[7] DOI Foundation. *DOI Handbook*, 2014. `http://www.doi.org/hb.html`, DOI:10.1000/182.

References[2]

[1] American Mathematical Society. `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] S. Chandrasekhar. *ApJ* **102**(3):395–401, 1945.

[4] S. Fear, et al. `http://www.ctan.org/pkg/booktabs`, [2012-06-24].

[5] J. Doe. `arXiv:0000.0000v1`.

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

[8] DOI Foundation. DOI Handbook.

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

[8] DOI Foundation. *DOI Handbook*, 2014. `http://www.doi.org/hb.html`, DOI:10.1000/182.