

How-To — A Guide to the `imeko_acta` L^AT_EX class

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Abstract

This article describes how to use the `imeko_acta.cls` class L^AT_EX to produce high quality typeset papers that are suitable for submission to the Acta IMEKO journal.

The editorial team of Acta IMEKO strongly encourages authors to use this L^AT_EX 2_ε template file to produce their manuscript. Please refer to the author for any suggestion, bug filing and complaint.

1 Forewords

The class `imeko_acta` is the official document class for formatting L^AT_EX submissions to the Acta IMEKO journal.

This class is composed by three files:

`imeko_acta.cls` the L^AT_EX class `imeko_acta.cls` for typesetting the main article text;

`imeko_acta.bst` the style for formatting the bibliography;

`imeko.png` the IMEKO logo, that appears in the upper right corner of the first page.

All you have to do is to download these three file from the journal website, place them in a folder, and start writing a new L^AT_EX file as usual. You will also found a bare article file, that is a template you can use and modify according to your needs, to start typesetting your article in the least possible amount of time.

In the rest of this guide I will try to provide the most important guidelines for using the class in an effective way. Please note that the class has been tested in a broad range of cases, but some bugs could still be present. If you think you found a bug, or are experiencing strange/faulty behaviour, please file a bug to the author.

IMPORTANT: the Acta IMEKO official template makes use of two different fonts for typesetting papers: Garamond for the main text areas and Calibri® for titling. This L^AT_EX class will replace Calibri® with Helvetica, for compatibility and performance reasons. Fonts will be then substituted during the production phase with the official ones.

2 Usage

The class has been prepared to use the least possible number of options, and hence can be loaded in the vast majority of cases with the command:

```
\documentclass{imeko_acta}
```

Besides, options for the class are supported, so that the classic loading will be:

```
\documentclass[<options>]{imeko_acta}
```

where the `options` can be the following:



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ABSTRACT

This article describes how to use the `imeko_acta.cls` class L^AT_EX to produce high quality typeset papers that are suitable for submission to the Acta IMEKO journal.

The editorial team of Acta IMEKO strongly encourages authors to use this L^AT_EX 2_ε template file to produce their manuscript. Please refer to the author for any suggestion, bug filing and complaint.

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Figure 1: The title area

`submit`, `final` to set if the typesetting has to be done for the reviewing phase or the final submission. Default is `submit`.

`article`, `technicalnote`, `editorial` change the type of paper. Default is `article`.

`showcorresponding`, `noshowcorresponding` indicates if the corresponding author should be explicitly marked with a mark after his/her name. Default is `noshowcorresponding`.

Since the class is built upon the base `article.cls` L^AT_EX class, all of its options can be specified. In some cases, however, we have disabled their effects if such options clashes with the requirements of the Acta IMEKO journal.

3 The Title area

The title area of any manuscript published in Acta IMEKO is typeset on a single column section, composed by the Title, the Author and Affiliations area, a light blue box containing the Abstract, and finally a box containing several manuscript data (keywords, fundings, corresponding author, etc.) and a “Citation” field, containing a string useful for citing directly the work. An example of the final aspect of the title area is represented in Fig. 2.

The title area is created with the standard L^AT_EX command `\maketitle` and using the same schema of `article.cls`. Before this command is called, the author must declare all of the text objects which have to appear in the title area, as detailed below.

3.1 Paper Title

Use the classic `title` command. It is safe to put it just after the `\begin{document}` line.

3.2 Authors

The inclusion of author names is performed with the usual `\author{}` environment.

However, this class uses a special way for entering the author names, because for each author we need to know also the exact abbreviated form of the name.

Therefore, it is required that authors input the tokens “name”, “surname” and “abbreviated” form separately.

Therefore, the general command that has to be used for inserting authors has the form:

```
\author[a1]{
name={Name},
surname={Family Name},
abbreviated={Abbreviated Name}
}
```

There is no need for new lines between the fields (everything can also go into one single line), but the syntax has to be respected.

The reason behind this requirement is that, in the titlepage area, the authors string under the title contains the fully expanded author names, while in the **Citation** field we will use the shortened form, to provide the authors and readers with a ready-to-use string for citing the article in their bibliography.

The optional argument `a1` is used to link each author to their respective affiliation. Moreover, inside the argument, one can introduce a sequence of multiple labels separated by a comma, depending on the number of affiliations with which an author is linked. For instance we can have:

```
\author[label1,label2,label3, ...]{
name={Name},
surname={Family Name},
abbreviated={Abbreviated Name}
}
```

The label can be a random text (one, two, three, ..., `a1`, `a2`, `a3`, ..., `aff1`, `aff2`, `aff3`, ..., are all valid labels), with the disclaimer that the labels cannot be pure numbers.

Therefore, to make a practical example, an author whose name is “Thomas Alva Edison” that has two different affiliations, will be introduced as:

```
\author[a1,a2]{
name={Thomas Alva},
surname={Edison},
abbreviated={T. A.}
}
```

and produces both the full name for the author field, and the abbreviated form “T. A. Edison”.

3.3 Affiliations

The labels defined before when inserting the authors of the papers are then needed in the definition of all the affiliations.

The command to insert the required affiliations is:

```
\affiliation[label1]{University of...}
\affiliation[label2]{MIT, Boston, USA}
\affiliation[label3]{University of Oxford, UK}
...
```

Therefore, to continue with the previous example, let's suppose that the author "Thomas Alva Edison" is affiliated with both the MIT and the Columbia University, and that the author string is the one provided before, we will insert the affiliations like:

```
\affiliation[a1]{MIT, Boston, USA}
\affiliation[a2]{Columbia University, USA}
```

3.4 Corresponding author

This journal support for a single Corresponding author. To indicate the author who is acting in that role for the current article, we will use the commands:

```
\CorrespondingAuthorNumber{n}
\CorrespondingAuthorEmail{email}
```

In these commands, the parameter n refers to the position of the corresponding author in the list of authors of the paper. Therefore, $n = 1$ for the first author in the list, $n = 2$ for the second and so forth.

The email of the Corresponding Author has to be specified, since it is needed to build one of the field of the title area.

4 Sectioning and others

The class behaves like the normal \LaTeX article class, so you can use the plain `section`, `subsection`, etc. to style your text.

5 Measurement Units

The Acta IMEKO journal, as described in the website, publishes scientific articles on measurement and instrumentation, where this research area should be interpreted as any of the fields covered by the IMEKO Technical Committees.

Therefore, all the units in the text should be expressed in SI units and formatted according to the SI guidelines. To this extent, the class already loads the `siunitx` package, which provides a set of commands to typeset numbers and units in SI a consistent way.

Please consider that the package is not only a typographical facility, but is a parsing tool for numbers, and for this reason it automatically handles the spacing between numbers and units, decimal grouping, uncertainties, rounding, etc.

For example, the command `\qty{1.23}{\meter\per\second}` will produce **1.23 m/s** with the correct spacing between the number and the unit. Look at the difference with writing 1.23 m/s, i.e. without using the `\qty` command.

The `siunitx` package also provides commands for typesetting quantities with uncertainties, such as `\qty{1.23 \pm 0.01}{\meter\per\second}`, which will produce 1.23 ± 0.01 m/s. Again, look at the difference with 1.23 ± 0.01 m/s, or with $1.23 \pm 0.01m/s$.

5.1 Quick `siunitx` reference

Here are some practical examples and tips for using the `siunitx` package effectively:

- For writing numbers without units, use `\num`:

```
\num{3.14159}
\num{1.23e-4}
```

which gives the numbers 3.141 59 and $1.23 \cdot 10^{-4}$.

- Use `\unit` to write units alone. Units are expressed using their SI symbol name, as in:

```
\unit{\meter}
\unit{\joule}
\unit{\second}
\unit{\kelvin}
```

which gives the symbols m, J, s and K.

- You can create compound units, by using multiplication (you can use both a single dot `.` or `\cdot`) and division (`\per`):

```
\unit{\joule\per\mole\per\kelvin}
\unit{\meter.\kilogram\per\second}
```

which gives, respectively, J/(mol · K) and m · kg/s.

- To write a number along with the measurement unit, use the `\qty` command:

```
\qty{value}{unit}
\qty{10}{\kilogram}
\qty{3.14}{\meter}
\qty{1.23e-4}{\newton}
\qty{7.2}{\volt}
```

which gives, respectively, 10 kg, 3.14 m, $1.23 \cdot 10^{-4}$ N, and 7.2 V.

- To include uncertainties, use the `\pm` symbol:

```
\qty{100 \pm 5}{\newton}
\qty{1.23 \pm 0.01}{\meter\per\second}
\qty{1.23 \pm 0.01}{\degreeCelsius}
```

which gives, respectively, 100 ± 5 N, 1.23 ± 0.01 m/s, and 1.23 ± 0.01 °C.

- To align numbers in tables, use the S column type:

```
\begin{tabular}{lS}
\toprule
Length & {Value (\si{\meter})} \\
\midrule
h & 1.2 \\
w & 4.5678 \\
d & 7.8 \\
\bottomrule
\end{tabular}
```

Which produces:

Length	Value (m)
h	1.2
w	4.5678
d	7.8

The package `siunitx` is very powerful and provides many more features, and for more details, please refer to the package documentation at <https://ctan.org/pkg/siunitx>.

6 Some extra explanations

The class uses the environments and commands defined in L^AT_EX kernel without any change in the signature so that clashes with other contributed L^AT_EX packages such as [hyperref.sty](#), [preview-latex.sty](#), etc., should be minimal.

[imeko.acta.cls](#) is primarily built upon the default [article.cls](#) and as such several things that works there should work also here.

This class depends on the following packages for its proper functioning:

1. [babel.sty](#) for hyphenation in GB English;
2. [ebgaramond.sty](#) to add a (OSS) support to the Garamond typeface for the main text;
3. [amsmath](#) for mathematical expressions;
4. [array,booktabs](#) for better tabular environments;
5. [tabularx](#) for automatic column-width tables;
6. [graphicx.sty](#) for graphics inclusion;
7. [helvet.sty](#) for typesetting Helvetica sans-serif parts;
8. [hyperref.sty](#) to support hyperlinking and metadata in the document;
9. [stfloat.sty](#) optional packages if floats need to be placed at the bottom of the page.
10. [microtype](#) optional package for introducing microtypographical features to the typesetting;
11. [enumitem](#) to match the itemized lists of the official Word template;
12. [caption](#) for typesetting captions of floats;
13. [colortbl](#) to highlight alternating rows of tabulars;

All the above packages are part of any standard L^AT_EX installation. Therefore, the users need not be bothered about downloading any extra packages.

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