BEILSTEIN JOURNAL OF NANOTECHNOLOGY

Technical Handbook

The LaTeX Beilstein bundle for submissions to the
Beilstein Journal of Nanotechnology

Contents

Abstract

The Beilstein bundle provides a LaTeX class file and a BibTeX style file in accordance with the requirements of submissions to the *Beilstein Journal of Nanotechnology*. Although the files can be used for any kind of document, they have only been designed and tested to be suitable for submissions to the *Beilstein Journal of Nanotechnology*.

1   Introduction

The Beilstein bundle consists of three parts. The LaTeX class `beilstein.cls` is intended to be used for submissions. It is based on the standard article class, but was modified to meet the requirements for submissions to the *Beilstein Journal of Nanotechnology* as published in the "Instructions for Authors" [1]. Moreover the LaTeX class `beilstein.cls` facilitates ease of use by providing the authors with a set of useful macros and environments.

The BibTeX style `bjnano.bst` is used by the class to format citations and references correctly. It is based on Joseph Wright's `achemso.bst`, but was largely adjusted to work exactly on *Beilstein Journal of Nanotechnology* submissions.

Finally, an example document is included in the Beilstein bundle. It is intended to be used as a template for submissions, and illustrates the usage of the class and the BibTeX file.

2   Installation

2.1   Global installation via your TeX distribution

From version 1.2 onwards, the Beilstein bundle is distributed via CTAN and the major TeX distributions. Therefore after having updated your TeX Live or MiK-TeX installation you can use the Beilstein files right away.

2.2   Local TDS installation

The Beilstein bundle is supplied with the TDS-ready ZIP file, `beilstein-tds.zip`. Simply unzip this file into your local texmf tree and run your hash program (e.g., `texhash` for recent TeXLive or MiKTeX systems).

To extract the bundle of files and to build the documentation yourself, run pdfLaTeX on `beilstein.dtx`. The files can then be installed either by putting them into the current working directory (where the main TeX file is) or — much better — as described above by moving the files to suitable places in a local texmf tree $LOCALTEXMF according to Table 1.

Table 1: Files contained in the Beilstein bundle.

File	→	Directory
beilstein.cls	→	$LOCALTEXMF/tex/latex/beilstein
beilstein.dtx	→	$LOCALTEXMF/source/latex/beilstein
beilstein.ins	→	$LOCALTEXMF/source/latex/beilstein
beilstein-template.bib	→	$LOCALTEXMF/tex/latex/beilstein
beilstein-template.tex	→	$LOCALTEXMF/tex/latex/beilstein
bjnano.bst	→	$LOCALTEXMF/bibtex/bst/beilstein
bjnano_logo.pdf	→	$LOCALTEXMF/source/latex/beilstein
figure1.pdf	→	$LOCALTEXMF/doc/latex/beilstein
scheme1.pdf	→	$LOCALTEXMF/tex/latex/beilstein
scheme2.pdf	→	$LOCALTEXMF/tex/latex/beilstein

If you are not sure about local texmf trees at all, you can have a look at https://texfaq.org/FAQ-inst-wlcf for more information.

3   Requirements

The Beilstein class was designed to rely on standard LaTeX packages only. It requires the following ones:

- Internal packages

  - xkeyval,

  - ifthen,

  - babel,

  - inputenc, fontenc.

- Fonts

  - newtxtext, tgheros, newtxtt

  - textcomp.

- Page layout

  - geometry,

  - ragged2e, everysel, footmisc,

  - setspace,

  - lineno.

- Math and science
  - amsmath, amstext, amssymb, amsgen, amsbsy, amsopn, amsfonts, newtx-math.

- Floats
  - float,
  - flafter,
  - graphicx,
  - array,
  - tabularx,
  - longtable.

- Bibliography
  - natbib.

All these packages should be present in any major TeX distribution and are also available from *The Comprehensive TeX Archive Network* (CTAN) at https://www.ctan.org.

A complete list of used files and tested versions can be found in the Appendix section on page 15.

4   The class file

4.1   Class options

Most of the things to be considered for submissions to the *Beilstein Journal of Nanotechnology* are directly included into the class file. There is only one major choice authors have to make, i.e., to determine the type of manuscript they want to submit.

manuscript=   The Beilstein-Institut has defined five such types and each type has a special purpose and structure. The chosen option is used internally to check for mandatory sections and elements. The types are designed to give the author a slight control over the article structure.

The selection of the type is done by the key-value-option `manuscript`, which can take the values listed in Table 2. To switch your document to a "Book Review Article" e.g., simply use `\documentclass[manuscript=bookreview]{beilstein}`. In case of an unknown value, the class will use the default option.

Table 2: Possible values for key-value option "manuscript".[a]

Option	Meaning
manuscript=bookreport	Book Report Article
manuscript=commentary	Commentary Article
manuscript=fullresearchpaper	*Full Research Paper*
manuscript=letter	Letter Article
manuscript=review	Review Article
manuscript=suppinfo	Supporting Information

[a]Default option is printed in italics.

american
british

Two other options of a more technical aspect exist. Firstly, you can tell LaTeX whether you use American or British English (see Table 3). Internally only different hyphenation patterns are used. So you might not see a difference in the output at first sight.

Table 3: Options for language.[a]

Option	Meaning
american, USenglish	*Use American English*
british, english, UKenglish	Use British English

[a]Default option is printed in italics.

applemac
latin1
utf8

Secondly, you might want to change the input encoding of your document, e.g., when using accented characters. Therefore, the class offers a small set of options (see Table 4). The option utf8 is set as default beginning with version 2.0.

Table 4: Options for input encoding.[a]

Option	Meaning
applemac	Use special Mac encoding
latin1	Use ISO8859-1 encoding
utf8	*Use UTF-8 encoding*

[a]Default option is printed in italics.

Further options have been added to the recent version of the class:

sectionnumbering

The Beilstein class disables the usual section numbering mechanism by changing the counter "secnumdepth" appropriately. You can switch back by using the class

option `sectionnumbering=true` or just `sectionnumbering`. Doing so all non-starred sectioning commands will be numbered while the starred versions still have no number.

fnpara   By default footnotes can only be used in tables and are printed one per line. This can be changed to paragraph mode, either locally (see page 10) or globally. To this purpose the Beilstein class offers the option `fnpara=true` or just `fnpara`.

Global options   The Beilstein class was developed to include all necessary requirements. However, if you need extra options for packages already being loaded by the class itself, you can add them to the list of global options.

4.2   Title page

The *Beilstein Journal of Nanotechnology* has its own title page format. However, a more or less standard set of LaTeX commands can be used to provide the necessary information right after `\begin{document}`:

\title   The title of your manuscript is given with `\title{⟨title⟩}`. There is also an optional argument that can be used when writing a document for the Supporting Information, e.g., `\title[⟨sititle⟩]{⟨title⟩}`. Both information are automatically used on the title page of the Supporting Information. For more information about creating Supporting Information files please see page 8.

\sititle   As an alternative to the optional argument of `\title` you can use the macro `\sititle{⟨sititle⟩}`.

\author   Each author of the article is named within their own `\author` command. For
\author*   a corresponding author the extended version `\author*` must be used. It has an additional second mandatory argument holding the author's email address.

With both commands the author's name is printed followed by a superscript number for the appropriate affiliation(s). As these numbers can be the same for several authors, an optional argument for a specific number can be used:

`\author[⟨affiliation number⟩]{⟨author's name⟩}` or

`\author*[⟨affiliation number⟩]{⟨author's name⟩}{⟨email address⟩}`.

If you want to provide an email address for a non-corresponding author, there is a second optional argument:

`\author[⟨affiliation number⟩][⟨email address⟩]{⟨author's name⟩}`

> In order to add an email address the first optional argument has to be present in any case. If there is no affiliation number, empty square brackets need to be given.

\affiliation   The affiliations are given with `\affiliation{⟨postal address⟩}` and are numbered consecutively. Each `\author` with dedicated affiliation(s) is followed by one or more `\affiliation` commands (see example below). This can also be combined with the optional affiliation number.

\maketitle   To print the title page use the command \maketitle. A complete title block might look like this:

```
1  \begin{document}
2  \title{Synthesis of highly substituted allenylsilanes by
3     alkylidenation of silylketenes}
4  %Corresponding author:
5  \author*{Stephen P. Marsden}{s.p.marsden@leeds.ac.uk} %
6  \affiliation{School of Chemistry, University of Leeds, Leeds
7     LS2 9JT, United Kingdom}
8  %A second author with two affiliations and an email address:
9  %Important: empty first optional argument
10 \author[][Ducept@...]{Pascal C. Ducept}
11 \affiliation{Department of Chemistry, Imperial College London,
12    London SW7 2AY, United Kingdom}
13 \affiliation{An alternative address can be given here.}
14 %A third author with the same affiliation as the second:
15 \author[2]{X. Y.}
16 \maketitle %print the title page
```

For abstract and keywords please see section 4.4.

4.3 Section headers

You can use the standard LaTeX sectioning commands (with the exception of \chapter) to structure your document. Depending on the type of manuscript some sections are mandatory while others are optional.

For a "Full Research Paper" the following section headings might be used:

```
1  \section{Introduction}
2  ...
3  \section{Experimental}
4  ...
5  \section{Results and Discussion}
6  ...
7  \section{Conclusion}
```

Table 5 gives an overview of all allowed section headings for the different Beilstein class manuscript types.

Table 5: Allowed section headings for the different Beilstein class manuscript types.

Section heading	BR[b]	CA[c]	FR[d]	LA[e]	RA[f]
	Manuscript type[a]				
Book Details	$+$	$-$	$-$	$-$	$-$
Conclusion	$-$	$+$	o	$-$	$+$
Discussion	$-$	$+$	$-$	$-$	$-$
Experimental	$-$	$-$	o	$-$	$-$
Findings	$-$	$-$	$-$	$+$	$-$
Introduction	$-$	$+$	$+$	$-$	$-$
Main Text	$+$	$-$	$-$	$-$	$-$
Results and Discussion (may be separate)	$-$	$-$	$+$	$-$	$-$
Review	$-$	$-$	$-$	$-$	$+$

[a]$+$ denotes a mandatory, o an optional and $-$ a non-feasible section
[b]Book Report Article
[c]Commentary Article
[d]Full Research Paper
[e]Letter Article
[f]Review Article

4.4   Special sections

abstract   After the title page an abstract must be given (with the exception of "Book Reports" and "Commentaries"). To meet the specifications for *Beilstein Journal of Nanotechnology* submissions LaTeX redefines the usual `abstract` environment internally.

\keywords   The "Keywords" need to be given right after the abstract. There can be an arbitrary number of keywords (at least five keywords are recommended), and therefore the `\keywords` macro has only one mandatory argument holding the keywords separated by semicolons.

An abstract with keywords should look like this:

```
\begin{abstract}
            ...
\end{abstract}
\keywords{allenylsilanes; rhodium(II) octanoate-mediated
    rearrangement; silylketenes; titanium carbenoids; ylide}
```

acknowledgements   The sections "Acknowledgements" and "Funding" are optional parts of all ar-
funding   ticle types.

> All financial disclosures are supposed to be part of the "Funding" section.

As the layout differs from that of the main text, these sections should be
written using the environments `acknowledgements` and `funding`:

```
1  \begin{acknowledgements}
2  We would like to thank ...
3  \end{acknowledgements}
```

```
1  \begin{funding}
2  This work was financially supported by ...
3  The authors are grateful for funding from ...
4  \end{funding}
```

suppinfo   Another optional section of an article is the "Supporting Information", which
              may consist of various "Supporting Information Files". To begin this section simply
              use \begin{suppinfo}.

\sifile   Inside the `suppinfo` environment the command `\sifile` is used to add a "Sup-
              porting Information File". The syntax is:
              `\sifile[⟨long description⟩]{⟨filename⟩}{⟨format⟩}{⟨short description⟩}`
              Each `\sifile` can be followed by a `\label{⟨labelname⟩}` to cross-reference
              that file in the main text using `\ref{⟨labelname⟩}`.
              The complete section could look like this:

```
1  \begin{suppinfo}
2  \sifile{experimental_part.pdf}{PDF}{Experimental part}
3  \label{si:experimental-part}
4  \sifile[A long description about the experimental data given in
5     this file]{nmr1.pdf}{PDF}{NMR spectra of compounds \CN{1},
6     \CN{2}, \CN{6} and \CN{7}.}
7  \end{suppinfo}
```

LaTeX source   A Supporting Information File can be created from a LaTeX source using
                 the Beilstein LaTeX class. The same syntax that is used for the title page
                 of the main manuscript can be used for the Supporting Information. An ad-
                 ditional title for the Supporting Information (e.g., "Additional experimental
                 data") can be added by using the [⟨sititle⟩] option of the `\title` command:
                 `\title[⟨sititle⟩]{⟨manuscript title⟩}`.
\sititle   Alternatively, the macro `\sititle{⟨sititle⟩}` can be used.

4.5   Floats

figure

table

scheme

In addition to the environments `table` and `figure` already included in LATEX, there is a third environment for *Beilstein Journal of Nanotechnology* publications, i.e., `scheme`. There is no difference in usage between `scheme` and the former two. To add a scheme "AScheme.pdf" you can enter the following:

```
1  \begin{scheme}
2  \caption{A scheme demonstrating something.}
3  \label{scheme:something}
4  \includegraphics[width=16.8cm,keepaspectratio]{AScheme}
5  \end{scheme}
```

pdfLATEX is limited to a small set of graphic formats. All files have to be either in the PDF, PNG or JPG format.

Using EPS graphics will lead to an error during upload to the submission system. EPS graphics need to be converted to PDF, e.g., by using the package epstopdf, before uploading the manuscript to the submission system.

\caption

\label

\ref

Please note that it does not matter whether `\caption` is put above or below `\includegraphics`. The caption will always be below the scheme in the output file. The same mechanism is used to put figure captions below and table captions above the content. If you want to add a concise title to a float, please use the optional argument: `\caption[⟨concise title⟩]{⟨legend⟩}`. However, as common in LATEX `\label{⟨labelname⟩}` must always follow `\caption`, otherwise a corresponding `\ref` command will yield wrong results.

\sglcolfigure

\sglcolscheme

sglcoltabular

sglcoltabularx

During the final typesetting process the article will be printed in double-column mode. Although this does not make any difference for section headings and text, floating objects can be formatted single-column (with a maximum width of 8.2 cm) or double-column (with a maximum width of 16.8 cm).

The Beilstein class defines some macros to comfortably add floats without bothering about the correct width. For single-column floats you can use `\sglcolfigure{⟨filename⟩}` and `\sglcolscheme{⟨filename⟩}` as well as the environments `sglcoltabular` and `sglcoltabularx`.

A single-column scheme containing "results-sil.pdf" can then be inserted as:

```
1  \begin{scheme}
2  \sglcolscheme{results-sil} %or alternatively:
3    %\includegraphics[width=8.2cm,keepaspectratio]{results-sil}
4  \caption{Reaction of substituted silylketenes with
5    ester-stabilised phosphoranes.}
6  \label{scheme:silylketenes}
7  \end{scheme}
```

\dblcolscheme
\dblcolfigure
dblcoltabular
dblcoltabularx

The same macros and environments with "dbl" instead of "sgl" are defined for double-column floats. Thus for a table you can use:

```
1  \begin{table} %floating environment
2  \caption{Reaction of substituted silylketenes with ester-stabilised
3    phosphoranes.}
4  \label{tab:silylketenes}
5  \begin{dblcoltabularx}{|l|>{\bfseries}l|>{\bfseries}l|l|l|X|X|}\hline
6  \bfseries Entry & \bfseries Ketene & \bfseries Ylide &
7  \bfseries Temp (\celsius) & \bfseries t (h) & \bfseries Solvent &
8  \bfseries Yield 6/7 (8)\\\hline
9  1 & 1a & 4 & 80 & 24 & PhH & 54\,\%\\\hline
10 2 & 1a & 5 & rt & 3  & CHCL & 60\,\%\\\hline
11 ...
12 \end{dblcoltabularx}
13 \end{table}
```

More information on the `tabularx` environment can be found in the documentation of the `tabularx` package [2]. The standard `tabular` environment with the common column parameters "l, c, r, p" is supported as well.

longtable   If you have a table that is longer than one page, please use the `longtable` environment. Please see the documentation of the package for more information.

\footnote   Footnotes are only allowed in tables (see Appendix section). You can use them in the caption as well as within the table. Lowercase letters are used automatically and the footnote text is written below the table.

\fnpara   You can use \fnpara to switch to paragraph mode for footnotes in all following
\fnnormal   tables. To restore the usual footnote formatting just use \fnnormal.

```
1  \fnpara
2  %Table with footnotes in paragraph mode
3  \begin{table}
4  ...
5  \end{table}
6  ...
7  \fnnormal
8  %Table with normal footnotes
9  \begin{table}
10 ...
11 \end{table}
```

4.6   Writing chemistry

LaTeX is a very powerful tool for mathematical typesetting. All commands and structures included in are provided by the Beilstein class as well. In addition, the packages of the $\mathcal{AMS}$, such as amsmath and amssymb, are loaded.

$...$
equation
You can use the standard delimiters $...$ for inline math and environments such as equation for math floats. Please use the inline math mode for single numbers such as -2 to obtain the correct minus sign. Please note that — as described in the "Instructions for Authors" — equations must fit a width of $8.2\,\text{cm}$ (single column). Wider equations need to be split accordingly.

\text
If you have text inside a formula, e.g., as an index, you can use \text to typeset it in an upright font and in the correct size.

```
1  $\text{amplitude sensitivity}=10$\\
2  $C_\text{PEG}=170$
```

However, for chemical elements and reactions the LaTeX math mode is not sufficient, because many chemical expressions have to be typeset in an upright font and not in italics. For example, O_2 results in O_2 instead of O_2. Using \text or writing O$_2$ can solve this issue, but both methods are not very comfortable when they have to be applied multiple times. Therefore a special \chem macro is provided by the Beilstein class.

Chemical specialities: the \chem and \unit macros
Although there are already many powerful packages such as siunitx or chemsym to write physical and chemical units and symbols, the Beilstein class implements its own rather simple interface to keep all submitted documents consistent and make it easier to process them during final typesetting.

\chem
^
_
For chemical formulas the macro \chem is defined. Inside its argument _ and ^ are active in the same way as in the math mode. All text, e.g., element names is typeset in an upright font.

```
1  \chem{CuCl_2} and \chem{{SO_4}^{2-}}\\
2  \chem{^2_1H+{^3_1H}}\\
3  $C\chem{_{Cu^{2+}}}\times 10^{-2}=0.005(1)\,\text{M}$\\
```
CuCl_2 and $\text{SO}_4{}^{2-}$
$^2_1\text{H} + {}^3_1\text{H}$
$C_{\text{Cu}^{2+}} \times 10^{-2} = 0.005(1)\,\text{M}$

\unit
The same applies to physical units. For instance, writing cm^2 does not result in cm^2, but cm^2. Thus, \unit can be used to enter all units correctly and more comfortably. If more than one unit is needed, ~ can be used to separate them.

```
1  $\text{amplitude sensitivity}=10\unit{nA~V^{-1}}$\\
2  $C_\text{PEG}=170\unit{mg/ml}$
```

amplitude sensitivity $= 10\,\text{nA}\,\text{V}^{-1}$

$C_\text{PEG} = 170\,\text{mg/ml}$

\curvearrowright   LaTeX provides several arrows for chemical reactions. The most common ones
\rightharpoondown are listed in Table 6. Many more can be obtained from amssymb.
\rightleftharpoons

```
\leftrightarrow 1  \chem{CH_4+2O_2\rightarrow CO_2 + 2H_2O}\\
\leftrightarrow 2  \chem{2H_{2(g)}+O_{2(g)}\to 2H_2 O_{(l)}} $\Delta H=-286$\unit{kJ/mol}\\
\Rightarrow     3  \chem{N_{2(g)}+3H_{2(g)}\rightleftharpoons 2NH_{3(g)}}
\uparrow
\downarrow
```

$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

$2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(l)}$ $\Delta H = -286$ kJ/mol

$N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)}$

Table 6: LaTeX macros for arrows used in chemical reactions.

Arrow	Macro	Usage
$\rightarrow$	\rightarrow or \to	One-way chemical reactions
$\rightleftarrows$	\rightleftarrows	Two-way chemical reactions
$\rightleftharpoons$	\rightleftharpoons	Equilibria
$\leftrightarrow$	\leftrightarrow	Resonance structures
$\Rightarrow$	\Rightarrow	Retrosynthetic analysis
$\uparrow$	\uparrow	
$\downarrow$	\downarrow	
$\curvearrowright$	\curvearrowright	
$\rightharpoondown$	\rightharpoondown	

\CN   Compounds have to be typeset in boldface. Instead of \textbf \CN can also
be used for a logical markup. For ranges of compound numbers \nobreakdash-
avoids linebreaks.

\| Long names of chemical compounds sometimes are hyphenated badly. This
\-   can be controlled by using \- for hyphens and \| for soft hyphens as arguments
in \IUPAC, e.g.,
\IUPAC{4,7-dimethyl\-3,5,7-tri\|hydro-1,2,4,7-tetrazocin\-3,8-dione}.

Chemical structures from external programs
There is a lot of highly specified software such as ChemDraw® to draw complex
chemical structures. You should always use such programs and then export your
drawings to the PDF format to be included in your LaTeX document as described
in section 4.5.

5 Managing references with BibTeX

5.1 The BibTeX style files

The Beilstein bundle includes a special BibTeX style `bjnano.bst`, which implements all needed entry types and fields as well as format specifications of the *Beilstein Journal of Nanotechnology*. It is always used automatically by the Beilstein class. The exact structure of a suitable BibTeX database for *Beilstein Journal of Nanotechnology* is described in section 5.2.

`\bibliography`   To generate the section "References" containing all information from the BibTeX database for all citations, the command `\bibliography{⟨database⟩}` is to be used just before `\end{document}`.

5.2 Structure of a BibTeX database

The BibTeX programming language knows the most common entry types cited in academic papers. However, a few such as "WWW" for internet resources and links or "SOFTWARE" are missing. They could be emulated, but it is much better to directly introduce them to BibTeX. The same is valid for special data fields.

Not all entry types and fields that are in included in BibTeXare needed and allowed in *Beilstein Journal of Nanotechnology* submissions. They could even lead to erroneous output when not treated correctly. Therefore the entry types are restricted to the following:

- `@ARTICLE`
- `@BOOK`
- `@INCOLLECTION`
- `@INPRESS`
- `@INPROCEEDINGS`
- `@MISC`
- `@PATENT`
- `@PHDTHESIS`
- `@PROCEEDINGS`
- `@SOFTWARE`
- `@WWW`

In addition to the well-known data fields the following data fields were added:

doi Digital Object Identifier, e.g.,
     `doi = {10.1080/02678290500291699}`
     (optional for all references)

url URL for any internet source, e.g.,
     `url = {https://www.beilstein-journals.org/bjnano}`
     (mandatory for `@WWW`)

urldate Date when the url was visited last, e.g.,
     `urldate = {Sep 12, 2007}`
     (mandatory for `@WWW`)

venue Information about a conference (place and time), e.g.,

    `venue = {Baltimore, MD, June 27--30, 1996}`

    (optional for `@PROCEEDINGS` and `@INPROCEEDINGS`)

version Version of a software, e.g., `version = {Revision C.02}`

    (mandatory for `@SOFTWARE`)

> The Beilstein bundle contains the file "beilstein-template.bib" with example entries for all types of references described in [1].

References

[1] *Beilstein Journal of Nanotechnology* Instructions for Authors. https://www.beilstein-journals.org/bjnano/authorInstructions

[2] *David Carlisle:* The tabularx package, v2.11 (2016-02-03), https://ctan.org/pkg/tabularx.

Appendix

Deactivated macros

A few macros were "deactivated", i.e., their usage results in an error. Right now this is valid for the standard commands listed in Table 7.

Table 7: Forbidden macros.

Macro	Alternative
`\and`	Use `\author` and `\author*` for every author
`\footnote{`⟨*text*⟩`}`	None[a]
`\thanks{`⟨*affiliation*⟩`}`	Use `\affiliation{`⟨*affiliation*⟩`}`

[a]`\footnote` remains active in the `table` environment.

List of package files

File name	Version
beilstein.cls	2020/02/11 v2.0 Template for submissions to the "Beilstein Journal of Nanotechnology" (BJNANO)
xkeyval.sty	2014/12/03 v2.7a package option processing (HA)
xkeyval.tex	2014/12/03 v2.7a key=value parser (HA)
ifthen.sty	2014/09/29 v1.1c Standard LaTeX ifthen package (DPC)
article.cls	2019/10/25 v1.4k Standard LaTeX document class
size12.clo	2019/10/25 v1.4k Standard LaTeX file (size option)
babel.sty	2020/01/15 3.38 The Babel package
bblopts.cfg	2005/09/08 v0.1 add Arabic and Farsi to "declared" options of babel
american.ldf	2017/06/06 v3.3r English support from the babel system
inputenc.sty	2018/08/11 v1.3c Input encoding file
fontenc.sty	
t1enc.def	2018/08/11 v2.0j Standard LaTeX file
textcomp.sty	2018/08/11 v2.0j Standard LaTeX package
ts1enc.def	2001/06/05 v3.0e (jk/car/fm) Standard LaTeX file
ts1enc.dfu	2019/07/11 v1.2j UTF-8 support for inputenc
tgheros.sty	2009/09/27 v1.2 TeX Gyre Heros as default sans serif family
kvoptions.sty	2019/11/29 v3.13 Key value format for package options (HO)
ltxcmds.sty	2019/12/15 v1.24 LaTeX kernel commands for general use (HO)
kvsetkeys.sty	2019/12/15 v1.18 Key value parser (HO)
amsmath.sty	2019/11/16 v2.17d AMS math features
amstext.sty	2000/06/29 v2.01 AMS text

File name	Version
amsgen.sty	1999/11/30 v2.0 generic functions
amsbsy.sty	1999/11/29 v1.2d Bold Symbols
amsopn.sty	2016/03/08 v2.02 operator names
amssymb.sty	2013/01/14 v3.01 AMS font symbols
amsfonts.sty	2013/01/14 v3.01 Basic AMSFonts support
newtxtext.sty	2018/03/27 v1.531
fontaxes.sty	2014/03/23 v1.0d Font selection axes
etoolbox.sty	2019/09/21 v2.5h e-TeX tools for LaTeX (JAW)
mweights.sty	2017/03/30 (Bob Tennent) Support package for multiple-weight font packages.
fontenc.sty	
t1enc.def	2018/08/11 v2.0j Standard LaTeX file
newtxtt.sty	2014/12/23 v1.051
newtxmath.sty	2020/01/11 v1.623
ifxetex.sty	2019/10/25 v0.7 ifxetex legacy package. Use iftex instead.
iftex.sty	2019/11/07 v1.0c TeX engine tests
ifluatex.sty	2019/10/25 v1.5 ifluatex legacy package. Use iftex instead.
centernot.sty	2016/05/16 v1.4 Centers the not symbol horizontally (HO)
binhex.tex	
geometry.sty	2020/01/02 v5.9 Page Geometry
ifvtex.sty	2019/10/25 v1.7 ifvtex legacy package. Use iftex instead.
geometry.cfg	
setspace.sty	2011/12/19 v6.7a set line spacing
ragged2e.sty	2019/07/28 v2.2 ragged2e Package (MS)
everysel.sty	2011/10/28 v1.2 EverySelectfont Package (MS)
footmisc.sty	2011/06/06 v5.5b a miscellany of footnote facilities
lineno.sty	2005/11/02 line numbers on paragraphs v4.41
multicol.sty	2019/03/01 v1.8w multicolumn formatting (FMi)
float.sty	2001/11/08 v1.3d Float enhancements (AL)
flafter.sty	2018/11/28 v1.4d Standard LaTeX floats after reference (FMi)
graphicx.sty	2017/06/01 v1.1a Enhanced LaTeX Graphics (DPC,SPQR)
graphics.sty	2019/11/01 v1.3d Standard LaTeX Graphics (DPC,SPQR)
trig.sty	2016/01/03 v1.10 sin cos tan (DPC)
graphics.cfg	2016/06/04 v1.11 sample graphics configuration
pdftex.def	2018/01/08 v1.0l Graphics/color driver for pdftex
array.sty	2019/08/31 v2.4l Tabular extension package (FMi)
tabularx.sty	2016/02/03 v2.11b 'tabularx' package (DPC)
longtable.sty	2019/02/06 v4.12 Multi-page Table package (DPC)
natbib.sty	2010/09/13 8.31b (PWD, AO)
url.sty	2013/09/16 ver 3.4 Verb mode for urls, etc.
xspace.sty	2014/10/28 v1.13 Space after command names (DPC,MH)

File name	Version
t1ntxtlf.fd	2015/01/17 v1.0 font definition file for T1/ntx/tlf
cleveref.sty	2018/03/27 v0.21.4 Intelligent cross-referencing
omlntxmi.fd	2015/08/25 Fontinst v1.933 font definitions for OML/ntxmi.
untxexa.fd	2012/04/16 Fontinst v1.933 font definitions for U/ntxexa.
ts1cmr.fd	2014/09/29 v2.5h Standard LaTeX font definitions
lmsntxsy.fd	2016/07/02 Fontinst v1.933 font definitions for LMS/ntxsy.
lmxntxexx.fd	2016/07/03 Fontinst v1.933 font definitions for LMX/ntxexx.
supp-pdf.mkii	
epstopdf-base.sty	2019-12-09 v2.10 Base part for package epstopdf
infwarerr.sty	2019/12/03 v1.5 Providing info/warning/error messages (HO)
grfext.sty	2019/12/03 v1.3 Manage graphics extensions (HO)
kvdefinekeys.sty	2019-12-19 v1.6 Define keys (HO)
pdftexcmds.sty	2019/11/24 v0.31 Utility functions of pdfTeX for LuaTeX (HO)
t1qhv.fd	2009/09/25 v1.2 font definition file for T1/qhv
ot1ntxtlf.fd	2015/01/17 v1.0 font definition file for OT1/ntx/tlf
umsa.fd	2013/01/14 v3.01 AMS symbols A
umsb.fd	2013/01/14 v3.01 AMS symbols B
untxmia.fd	2018/04/14 Fontinst v1.933 font definitions for U/ntxmia.
untxsym.fd	2015/03/20 Fontinst v1.933 font definitions for U/ntxsym.
untxsyc.fd	2012/04/12 Fontinst v1.933 font definitions for U/ntxsyc.

Change History