

The HEP-PAPER package*

Publications in high energy physics

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Abstract

The HEP-PAPER package aims to provide a single style file containing most configurations and macros necessary to write appealing publications in High Energy Physics. Instead of reinventing the wheel by introducing newly created macros HEP-PAPER preferably loads third party packages as long as they are lightweight enough.

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1 Introduction

For usual publications it is enough to load additionally to the `article` class without optional arguments only the HEP-PAPER package [1].

```
\documentclass{article}
\usepackage{hep-paper}
```

The most notable changes after loading the HEP-PAPER package is the change of some L^AT_EX defaults. The paper and font sizes are set to A4 and 11 pt, respectively. Additionally, the paper geometry is adjusted using the GEOMETRY package [2]. Furthermore, the font is changed to latin modern (LM) using the CFR-LM package [3] with MICROTYP^E [4] optimizations. Finally, portable document format (PDF) hyperlinks are implemented with the HYPERREF package [5]. If only subset of the functionality is needed one of the smaller style files HEP-TITLE, HEP-ACRONYMS, and HEP-BIBLIOGRAPHY containing only the macros relevant to sections 2.1, 2.2.2, and 2.5, respectively.

hep-title
hep-bibliography
hep-acronyms

1.1 Options

- `paper` The `paper=<format>` option loads the specified paper format. The possible *<formats>* are: `a0`, `a1`, `a2`, `a3`, `a4`, `a5`, `a6`, `b0`, `b1`, `b2`, `b3`, `b4`, `b5`, `b6`, `c0`, `c1`, `c2`, `c3`, `c4`, `c5`, `c6`, `ansia`, `ansib`, `ansic`, `ansid`, `ansie`, `letter`, `executive`, `legal`. The default is `a4`.
- `font` The `font=<size>` option loads the specified font size. The possible *<sizes>* are: `8pt`, `9pt`, `10pt`, `11pt`, `12pt`, `14pt`, `17pt`, `20pt`. The default is `11pt`.
- `lang` The `lang=<name>` option switches the document language to one of the values provided by the BABEL package [6]. The default is `british`.
- `sansserif` The `sansserif` option switches the document including math to sans serif font shape.
- `oldstyle` The `oldstyle` option activates the use of oldstyle text- (123) in favour of lining- (123) figures in text mode.
- `parskip` The `parskip` option changes how paragraphs are separated from each other using the PARSKIP package [7]. The L^AT_EX default is separation via indentation the `parskip` option switches to separation via vertical space.¹
- `symbols` The `symbols=<family>` set the family of the symbol fonts. `symbols=ams` loads the two $\mathcal{A}\mathcal{M}\mathcal{S}$ fonts [8] and the BM bold fonts. The default `symbols=true` replaces additionally the blackboard font with the D_SFONT [9]. `symbols=minion` switches the symbol fonts to the Adobe MinionPro companion font from the M_NSYMBOL package [10]. `symbols=false` deactivates loading any additional symbol fonts.

¹ Although the `parskip` option is used for this document, it is recommended only for very few document types such as technical manuals or answers to referees.

1.1.1 Deactivation

The HEP-PAPER package loads few bigger packages which have a large impact on the document. The deactivation options can prevent such and other adjustments.

- `defaults` The `defaults` option prevents the adjustment of the page geometry and the font size set by the document class.
- `title` The `title=false` option deactivates the title page adjustments.
- `bibliography` The `bibliography=<key>` option prevents the automatic loading of the BIBLATEX package [11] if `<key>=false`. Otherwise the `<key>` is passed as `style` string to the BIBLATEX package.
- `glossaries` The `glossaries=false` option deactivates acronyms and the use of the GLOSSARIES package [12].
- `references` The `references=false` option prevents the CLEVEREF package [13] from being loaded and deactivates further redefinitions of reference macros.

1.1.2 Compatibility

The compatibility options activate the compatibility mode for certain classes and packages used for publications in high energy physics. They are mostly suitable combinations of options described in the previous section. If HEP-PAPER is able to detect the presence of such a class or package, *i.e.* if it is loaded before the HEP-PAPER package, the compatibility mode is activated automatically.

- `beamer` The `beamer` option activates the BEAMER [14] compatibility mode.
- `jhep` The `jhep` option activates the JHEP [15] compatibility mode.
- `jcap` The `jcap` option activates the JCAP [16] compatibility mode.
- `revtex` The `revtex` option activates the REVTeX [17] compatibility mode.
- `pos` The `pos` option activates the PoS compatibility mode.
- `springer` The `springer` option activates the compatibility mode the `svjour` class [18].

1.1.3 Reactivation

The HEP-PAPER package deactivates unrecommended macros, which can be reactivated manually.

- `manualplacement` The `manualplacement` option reactivates manual float placement.
- `eqnarray` The `eqnarray` option reactivates the depreciated `eqnarray` environment.

2 Macros and environments

- `twocolumn` If the global `twocolumn` option is present the page geometry is changed to cover
- `abstract*`

almost the entire page. Additionally the `abstract*` environment is defined that generates a one column abstract and takes care of placing the title information.

2.1 Title page

`\series` The `\series{<series>}` macro is defined using the TITLING package [19].

`\title` The PDF meta information is set according to the `\title{<text>}` and `\author {<text>}` information.

`\subtitle` The `\subtitle{<subtitle>}` macro is defined.

`\editor` In order to facilitate multiple authors with different affiliations the AUTHBLK package [20] is loaded. The following lines add *e.g.* two authors with different affiliations

`\author`

`\affiliation` `\author[1]{Author one \email{email one}}`

`\affiliation[1]{Affiliation one}`

`\email` `\author[2]{Author two \email{email two}}`

`\affiliation[1,2]{Affiliation two}`

`\preprint` The `\preprint{<number>}` macro places a pre-print number in the upper right corner of the title page.

`abstract` The `abstract` environment is adjusted to not start with an indentation.

`\titlefont` Various title font macros are defined, allowing to change the appearance of the `\maketitle` output.

`\subtitlefont`

`\authorfont`

2.2 Text

`\affiliationfont`

`\preprintfont` Hyphenation is provided by the BABEL package [6] and quotation commands are provided by the CSQUOTES package [21]. The latter package provides the convenient macros `\enquote{<text>}` and `\MakeOuterQuote{"}` allowing to leave the choice of quotation marks to L^AT_EX and use " instead of the pair “ and ”, respectively.

`\enquote`

`\MakeOuterQuote`

`\eg` The FOREIGN package [22] defines macros such as `\eg`, `\ie`, `\cf`, and `\vs` which are typeset as *e.g.*, *i.e.*, *cf.*, and *vs.*

`\vs`

`\no` The `\no{<number>}` macro is typeset as \mathbb{N}^{123} .

`\no`

`\software` The `\software{<version>}{<name>}` macro is typeset as HEP-PAPER v1.7.

`\online` The `\online{<url>}{<text>}` macro combines the features of the `\href{<url>}{<text>}` [5] and the `\url{<text>}` [23] macros, resulting in *e.g.* `ctan.org/pkg/hep-paper`.

`inlinelist` The `inlinelist` and `enumdescript` environments are defined using the ENUMITEM package [24].

`enumdescript`

The three main points are

```
\begin{inlinelist}
  \item one
  \item two
  \item three
\end{inlinelist}
```

The three main points are i) one, ii) two, and iii) three.

```
\begin{enumdescript}[label=\Roman*])
  \item{First} one
  \item{Second} two
  \item{Third} three
\end{enumdescript}
```

I) **First** one
 II) **Second** two
 III) **Third** three

`\textsc` A bold versions **SMALL CAPS** and a sans serif version of **SMALL CAPS** based on the computer modern (CM) font [25] is provided, the latter using the `SANSMATH-FONTS` package [26].

`\underline` The `\underline` macro is redefined to allow line-breaks using the `ULEM` package [27].

`\overline` The `\overline` macro is extended to also `\overline` text outside of math environments.

`\useparskip` If the `parskip` option is activated the `\useparindent` macro switches to the usual parindent mode, while the `\useparskip` macro switches to the parskip mode.

`\useparindent`

2.2.1 References and footnotes

`\cref` References are extended with the `CLEVEREF` package [13], which allows to *e.g.* just type `\cref{<key>}` in order to write ‘figure 1’. Furthermore, the `CLEVEREF` package allows to reference multiple objects within one `\cref{<key1,key2>}`.

`\cite` Citations are adjusted to not start on a new line in order to avoid the repeated use of `\cite{<key>}`.

`\ref` References are also adjusted to not start on a new line.

`\eqref` Footnotes are adjusted to swallow white space before the footnote mark and at the beginning of the footnote text.

`\subref`

`\footnote`

2.2.2 Acronyms

`\acronym` The `\acronym{<*>[<typeset abbreviation>]{<abbreviation>}{<*>}{<definition>}[<plural definition>]}` macro generates the singular `\<abbreviation>` and plural `\<abbreviation>s` macros. The first star prevents the addition of an ‘s’ to the abbreviation plural. The

`\shortacronym`

`\longacronym`

second star restores the \TeX default of swallowing subsequent white space. The long form is only shown at the first appearance of these macros, later appearances generate the abbreviation with a hyperlink to the long form. The long form is never used in math mode. Capitalization at the beginning of paragraphs and sentences is (mostly) ensured. The `\shortacronym` and `\longacronym` macros are drop-in replacements of the `\acronym` macro showing only the short or long form of their acronym. The first use form of the acronym can be enforced by resetting the acronym counter with

`\resetacronym`

`\dummyacronym`

`\resetacronym{<key>}`. If the acronym counter equals one at the end of the document the short form of the acronym is not introduced. Placing a `\dummyacronym{<key>}` at the end of the document ensures that the short form is introduced.

2.3 Math

The `MATHTOOLS` [28] and `AMSSYMB` [8] packages are loaded. They in turn load the `\mathbf` $\mathcal{A}\mathcal{M}\mathcal{S}$ -`\LaTeX` `AMSMATH` [29] and `AMSFONTS` [8] packages. Bold math, via `\mathbf` is improved by the `BM` package [30], *i.e.* ($Ab\Gamma\delta\mathbf{A}\mathbf{b}\mathbf{\Gamma}\mathbf{\delta}$). Macros switching to `bfseries` such as `\section{<text>}` are ensured to also typeset math in bold. The `\text{<text>}` macro makes it possible to write text within math mode, *i.e.* ($Ab\Gamma\delta\mathbf{A}\mathbf{b}\mathbf{\Gamma}\mathbf{\delta}$). The math sans serif alphabet is redefined to be italic sans serif if the main text is serif and italic serif if the main text is sans serif, *i.e.* ($Ab\Gamma\delta\mathbf{A}\mathbf{b}\mathbf{\Gamma}\mathbf{\delta}$). The `\mathcal` font *i.e.* ($ABCD$) is accompanied by the `\mathscr` font *i.e.* ($\mathcal{A}\mathcal{B}\mathcal{C}\mathcal{D}$). The `\mathbb` font is improved by the `DOUBLESTROKE` package [9] and adjusted depending on the `sansserif` option *i.e.* ($\mathbb{A}\mathbb{h}\mathbb{1}$). Finally, the `\mathfrak` font is also available *i.e.* ($\mathfrak{A}\mathfrak{a}\mathfrak{B}\mathfrak{b}\mathfrak{1}\mathfrak{2}$). Details about the font handling in `\TeX` can be found in reference [31].

`\nicefrac` The `\frac{<number>}{<number>}` macro is accompanied by `\nicefrac{<number>}{<number>}`, `\flatfrac{<number>}{<number>}`, and `\flatfrac{<number>}{<number>}` leading to $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, and $\frac{1}{2}$. Diagonal matrix `\diag` and signum `\sgn` operators are defined.

`\diag` The `\mathdef{<name>}{<arguments>}{<code>}` macro (re-)defines macros only within math mode without changing the text mode definition.

`\mathdef` The imaginary unit `i` and the differential `d` are defined using this functionality.

`\i` For longer paper it can be useful to re-number the equation in accordance with the section numbering `\numberwithin{equation}{section}`. In order to further reduce

`\numberwithin` the size the of equation counter it can be useful to wrap `align` environments with multiple rows in a `subequations` environment. Both macros are provided by the `AMSMATH` package.

`eqnarray` The depreciated `eqnarray` environment is undefined as long this behaviour is not prevented by the `eqnarray` package option. The `split`, `multline`, `align`, `multlined`, `aligned`, `alignedat`, and `cases` environments of the `AMSMATH` and `MATHTOOLS` packages should be used instead.

`equation` Use the `equation` environment for short equations.

`\begin{equation}`
`left = right \ .`
`\end{equation}`

$$\boxed{\text{left}} = \boxed{\text{right}} . \quad (1)$$

`multline` Use the `multline` environment for longer equations.

`\begin{multline}`
`left = right 1 \`
`+ right 2 \ .`
`\end{multline}`

$$\boxed{\text{left}} = \boxed{\text{right 1}} + \boxed{\text{right 2}} . \quad (2)$$

split Use the `split` sub environment for equations in which multiple equal signs should be aligned.

`\begin{equation} \begin{split}`
`left \&= right 1 \`
`\&= right 2 \ .`
`\end{split} \end{equation}`

$$\boxed{\text{left}} = \boxed{\text{right 1}} = \boxed{\text{right 2}} . \quad (3)$$

align Use the `align` environment for the vertical alignment and horizontal distribution of multiple equations.

`\begin{subequations} \begin{align}`
`left \&= right \ , \&`
`left \&= right \ , \`
`left \&= right \ , \&`
`left \&= right \ .`
`\end{align} \end{subequations}`

$$\boxed{\text{left}} = \boxed{\text{right}} , \quad \boxed{\text{left}} = \boxed{\text{right}} , \quad (4a)$$

$$\boxed{\text{left}} = \boxed{\text{right}} , \quad \boxed{\text{left}} = \boxed{\text{right}} . \quad (4b)$$

aligned Use the `aligned` environment within a `equation` environment if the aligned equations should be labeled with a single equation number.

multlined Use the `multlined` environment if either `split` or `align` contain very long lines.

`\begin{equation} \begin{split}`
`left \&= right 1 \ \&=`
`\begin{multlined}[t]`
`right 2 \ \ + right 3 \ .`
`\end{multlined}`
`\end{split} \end{equation}`

$$\boxed{\text{left}} = \boxed{\text{right 1}} = \boxed{\text{right 2}} + \boxed{\text{right 3}} . \quad (5)$$

alignat Use the `alignat` environment together with the `\mathllap` macro for the alignment of multiple equations with vastly different lengths.

`\begin{subequations}`
`\begin{alignat}{2}`
`left \&= long right \&\ , \`
`le. 2 \&= ri. 2 \ , \&`
`\mathllap{le. 3 = ri. 3} \& \ .`
`\end{alignat}`
`\end{subequations}`

$$\boxed{\text{left}} = \boxed{\text{long right}} , \quad (6a)$$

$$\boxed{\text{le. 2}} = \boxed{\text{ri. 2}} , \quad \boxed{\text{le. 3}} = \boxed{\text{ri. 3}} . \quad (6b)$$

As a rule of thumb if you have to use `\notag`, `\nonumber`, or perform manual spacing via `\quad` you are probably using the wrong environment.

2.3.1 Physics

\unit The correct spacing for units, *cf.* equation (7), is provided by the macro `\unit[⟨value⟩]`
\inv `{⟨unit⟩}` from the `UNITS` package [32] which can also be used in text mode. The macro

`\inv[⟨power⟩]{⟨text⟩}` allows to avoid math mode also for inverse units such as 5 fb^{-1} typeset via `\unit[5]{\inv{fb}}`.

Greek letters are adjusted to always be italic and upright in math and text mode, respectively, using the `FIXMATH` [33] and `ALPHABETA` [34] packages. This allows differentiations like

$$\sigma = 5\text{ fb} , \quad \text{at } 5\sigma \text{ C.L.} , \quad \mu = 5\text{ cm} , \quad l = 5\mu\text{m} , \quad (7)$$

and *e.g.* to distinguish gauge ν and mass $\mathbf{\nu}$ eigenstates in models with massive neutrinos. Note that `\mathrm` and therefore `\unit` transform italic Greek character to seemingly random upright characters, this can be avoided by using `\unit{\text{\mu m}}`. Additionally, Greek letters can also be directly typed using Unicode.

`\ev` The `PHYSICS` package [35] provides additional macros such as

$$\langle\phi\rangle , \quad \frac{\partial^n f}{\partial x^n} , \quad [A, B] , \quad \mathcal{O}(x^2) , \quad x|_0^\infty , \quad \det(M) . \quad (8)$$

`\order` The `\cancel{⟨characters⟩}` macro from the `CANCEL` package [36] and the `\slashed{⟨character⟩}` macro from the `SLASHED` package [37] allow to cancel math and use the Dirac slash notation *i.e.* $\cancel{\phi}$, respectively.

`\overlefttrightarrow` A better looking over left right arrow is defined *i.e.* $\overleftrightarrow{\partial}$.

2.4 Floats

`figure` Automatic float placement is adjusted to place a single float at the top of pages and
`table` to reduce the number of float pages, using the `LATEX` macros.

`\setcounter{bottomnumber}{0}` no floats at the bottom of a page (default 1)
`\setcounter{topnumber}{1}` a single float at the top of a page (default 2)
`\setcounter{dbltopnumber}{1}` same for full widths floats in two-column mode
`\renewcommand{\textfraction}{.1}` large floats are allowed (default 0.2)
`\renewcommand{\topfraction}{.9}` (default 0.7)
`\renewcommand{\dbltopfraction}{.9}` (default 0.7)
`\renewcommand{\floatpagefraction}{.8}` float pages must be full (default 0.5)

`\raggedright` Additionally, manual float placement is deactivated but can be reactivated using the `manualplacement` package option. It is however recommended to archive the desired design by adjusting above macros. The most useful float placement is usually archived by placing the float *in front* of the paragraph it is referenced in first. The float environments have been adjusted to center their content. The usual behaviour can be reactivated using `\raggedright`.

`panels` The `panels` environment makes use of the `SUBCAPTION` package [38]. It provides
`\panel` sub-floats and takes as mandatory argument either the number of sub-floats (default 2) or the width of the first sub-float as fraction of the `\linewidth`. Within the `\begin{panels}[⟨vertical alignment⟩]{⟨width⟩}` environment the `\panel` macro

```

\begin{panels}{2}
  code
\panel
  \begin{tabular}...\end{tabular}
\end{panels}

```

(a) Code for this panel environment.

		one		two	
		a	b	c	d
		a	b	c	d

(b) The `booktabs` and `multirow` features.

Table 1: Example use of the `panels` environment in Panel (a) and the features from the `BOOKTABS` and `MULTIROW` packages in Panel (b).

initiates a new sub-float. In the case that the width of the first sub-float has been given as an optional argument to the `panels` environment the `\panel{<width>}` macro takes the width of the next sub-float as mandatory argument. The example code is presented in table 1a.

`tabular` The `BOOKTABS` [39] and `MULTIROW` [40] packages are loaded enabling publication quality tabulars such as in table 1b.

`\graphic` The `GRAPHICX` package [41] is loaded and the `\graphic[<width>]{<figure>}` macro is defined, which is a wrapper for the `\includegraphics{<figure>}` macro and takes the figure width as fraction of the `\linewidth` as optional argument (default 1). If the graphics are located in a sub-folder its path can be indicated by `\graphics{<subfolder>}`.

2.5 Bibliography

`\bibliography` The `BIBLATEX` package [11] is loaded for bibliography management. The user has to add the line `\bibliography{<my.bib>}` to the preamble of the document and `\printbibliography` at the end of the document. The bibliography is generated by `BIBER` [42]. `biblatex` is extended to be able to cope with the `collaboration` and `reportNumber` fields provided by `inspirehep.net` and a bug in the volume number is fixed. Additionally, the PubMed IDs are recognized and `ctan.org`, `github.com`, `gitlab.com`, `bitbucket.org`, `launchpad.net`, `sourceforge.net`, and `hepforge.org` are valid `eprinttypes`. Errata can be included using the `related` feature.

```

\article{key1,
  ...,
  relatedtype="erratum",
  related="key2",
}
\article{key2,
  ...,
}

```

3 Conclusion

The `HEP-PAPER` package provides a matching selection of preloaded packages and additional macros enabling the user to focus on the content instead of the layout by

reducing the amount of manual tasks. The majority of the loaded packages are fairly lightweight, the others can be deactivated with package options.

arxiv-collector `arxiv.org` [43] requires the setup dependent `bb1` files instead of the original `bib` files, which causes trouble if the local `LATEX` version differs from the one used by arXiv. The `ARXIV-COLLECTOR` python script [44] alleviates this problem by collecting all files necessary for publication on arXiv (including figures).

A Math alphabet allocation

Of the 16 available math alphabets, $\mathrm{T}_{\mathrm{E}}\mathrm{X}$ loads four by default

- 0) **OT1** Text (latin, upper case greek, numerals, text symbols)
- 1) **OML** Math Italic (latin, greek, numerals, text symbols)
- 2) **OMS** Symbol (`\mathcal`, operators)
- 3) **OMX** Math Extension (big operators, delimiters)

The text font 0) of CM is `cmr10 \OT1/cmr/m/n/10`, which is replaced by LM to be `rm-lmr10 \OT1/lmr/m/n/10`, the `sansserif` option uses `rm-lmss10 \OT1/lmss/m/n/10`. The italic math font 1) of CM is `cmml10 \OML/cmm/m/it/10`, and is replaced by LM to be `lmmi10 \OML/lmm/m/it/10`, the `sansserif` options uses `cmbrmi10 \OML/cmbrm/m/it/10` from the CMBRIGHT package [45]. The symbol font 2) of CM is `cmsy10 \OMS/cmsy/m/n/10`, and is replaced by LM to be `lmsy10 \OMS/lmsy/m/n/10`, the `sansserif` options uses `cmssy10 \OMS/cmssy/m/n/10` from the SANSMATHFONTS package [26]. The extension font 3) of CM is `cmex10 \OMX/cmex/m/n/5`, and is replaced by the EXSCALE package [46] to be `cmex10 \OMX/cmex/m/n/10`, the `sansserif` option loads `cmssex10 \OMX/cmssex/m/n/10`. The AMSSYMB (AMSFONTS) packages [47] load two more symbol fonts

- 4) **msam10** `\U/msa/m/n/10` AMS symbol font A (special math operators)
- 5) **msbm10** `\U/msb/m/n/10` AMS symbol font B (`\mathbb`, negated operators)

The `sansserif` option replaces them with `ssmsam10 \U/ssmsa/m/n/10` and `ssmsbm10 \U/ssmsb/m/n/10` from the SANSMATHFONTS package [26], respectively. The BM package [30] loads the bold version for the fonts 0) to 2).

Other math alphabets are only loaded on demand, *e.g.* `\mathsf` uses a sans serif font and `\mathbf` without the BM package uses a bold font. The `\mathscr` macro uses the script font from the MATHRSFS package [48]

- 9) **rsfs10** `\U/rsfs/m/n/10` Math script font (capital letters)

The `\mathbb` macro loads the double stroke font from the DSFONT package [9], this can be prevented with the `symbols=ams` option.

- 10) **dsrom10** `\U/dsrom/m/n/10` Double stroke font

The `\mathfrak` macro loads the fractur font from the AMSSYMB package [47]

- 11) **eufm10** `\U/euf/m/n/10` Math fraktur (Basic Latin)

The HEP-PAPER package uses nine of the available 16 math alphabets. This number can be reduced by three using `\newcommand{\bmmax}{0}` from the BM package [30] and brought down to the default of four with the option `symbols=false`.

Figure 1: Basic math fonts

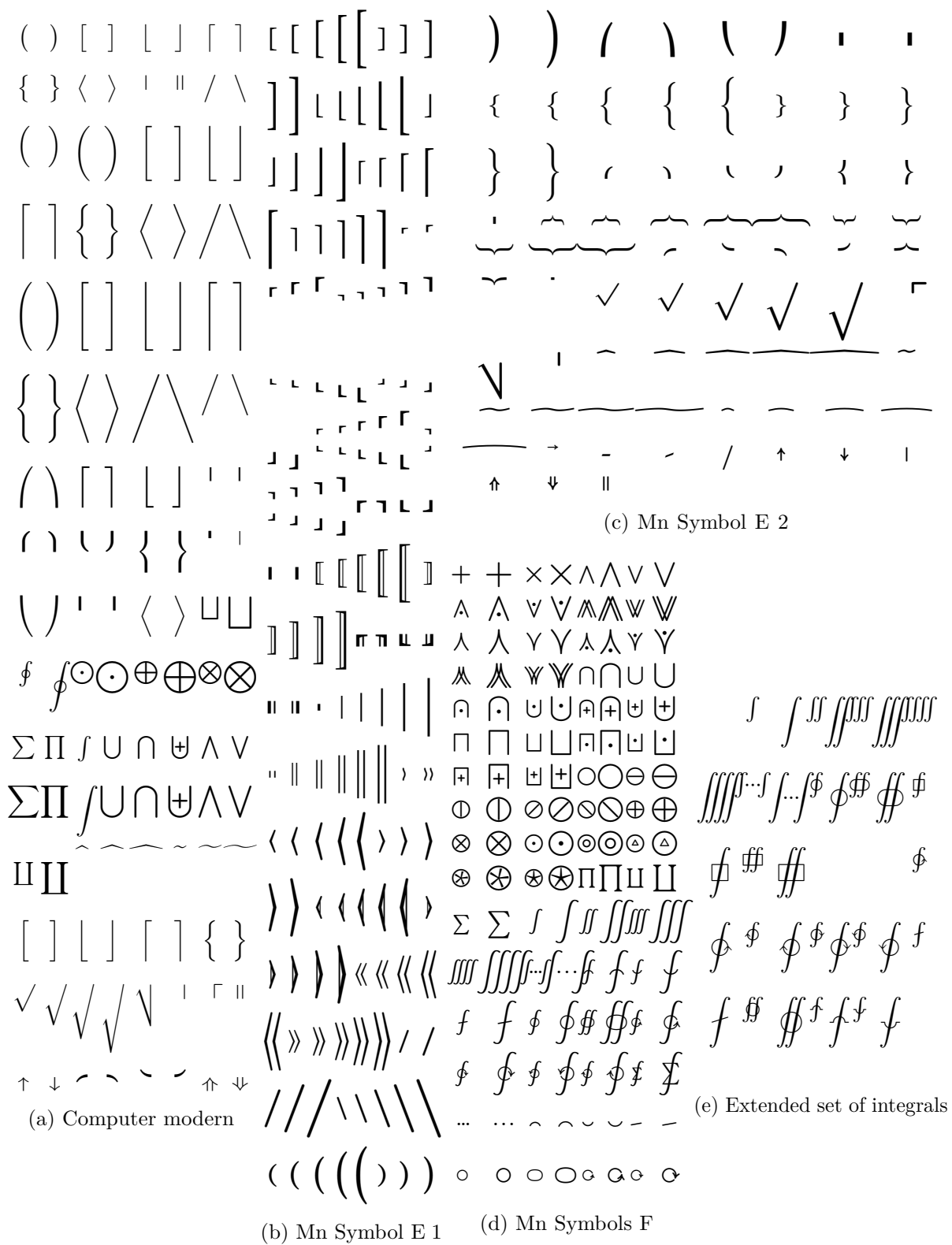


Figure 2: Math extension fonts

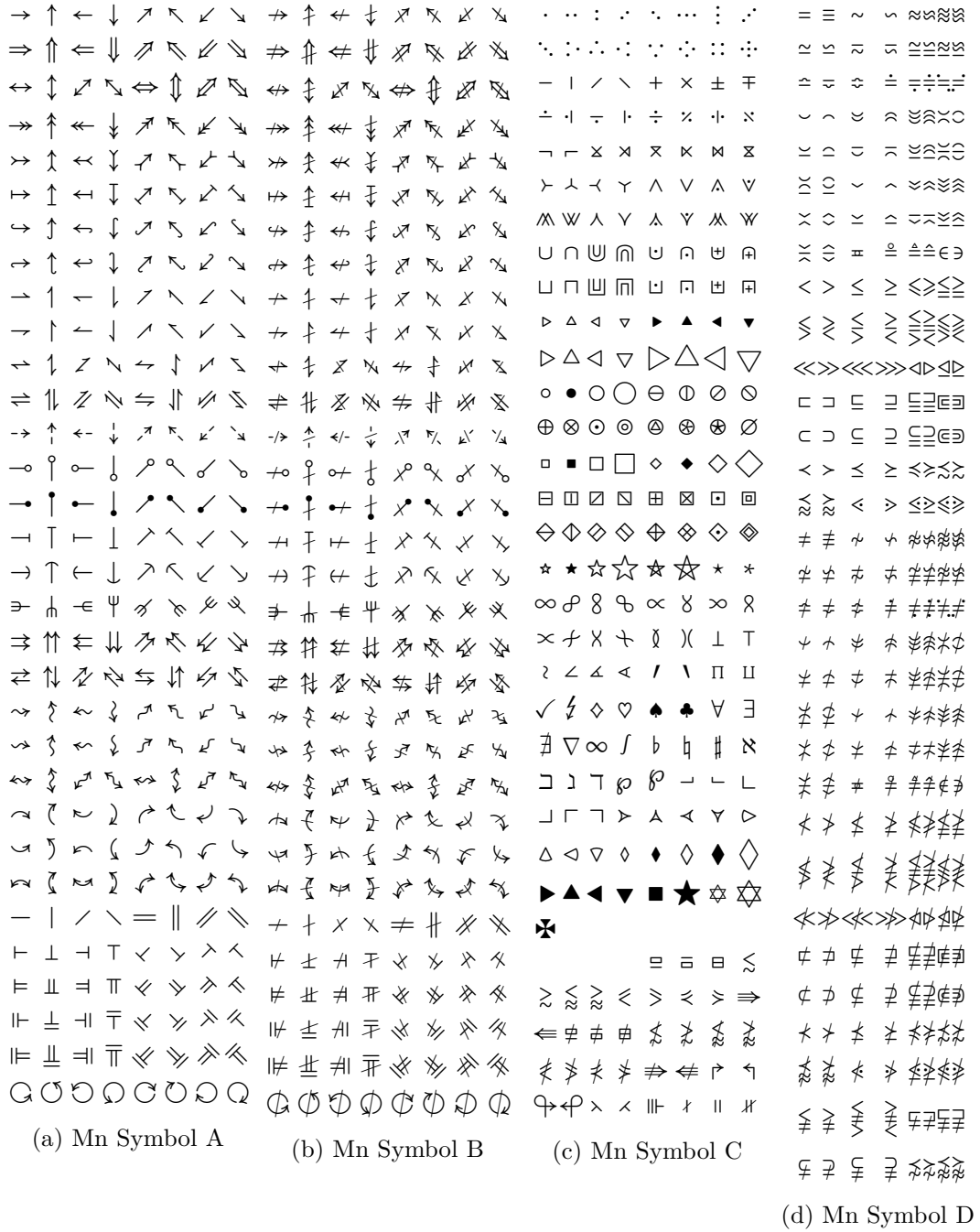


Figure 3: Minion symbol fonts

The `symbols=minion` options replaces the fonts 2) to 5) with corresponding fonts from the `MNSYMBOL` package [10]. Additionally, two more symbol alphabets are allocated, the `BM` package [30] loads one more font and now `\mathcal` triggers the use of one additional alphabet. Hence, the `minion` option uses three to four more math alphabets than a usual setup.

B Options

Load the `PDFTEXCMDs` [49] and `KVOPTIONS` [50] packages and define a `hep` namespace.

```
1 \RequirePackage{pdftexcmds}
2 \RequirePackage{kvoptions}
3 \SetupKeyvalOptions{
4   family=hep,
5   prefix=hep@
6 }
```

`paper` Define a `paper=<size>` option. Make A4 paper the default.

```
7 \DeclareStringOption[a4]{paper}
```

`font` Define a `figures=<size>` option. Make 11pt the default font size.

```
8 \DeclareStringOption[11pt]{font}
```

`lang` Define the `lang` option, which takes the values provided by the `BABEL` package [6]. Make `british` the default language.

```
9 \DeclareStringOption[british]{lang}
```

`sansserif` Define the option pair `serif` and `sansserif` controlling the font shape of the whole document.

```
10 \DeclareBoolOption[true]{serif}
11 \DeclareComplementaryOption{sansserif}{serif}
```

`lining` Define the `lining` option deactivating the use of text figures in text mode.

```
12 \DeclareBoolOption[true]{lining}
13 \DeclareComplementaryOption{oldstyle}{lining}
```

`parskip` Define the option pair `parindent` and `parskip` controlling the separation of paragraphs.

```
14 \DeclareBoolOption[true]{parindent}
15 \DeclareComplementaryOption{parskip}{parindent}
```

`symbols` Provide the `symbols` option allowing to switch the symbol font.

```
16 \DeclareStringOption[true]{symbols}
```


B.1 Deactivation

defaults Define the **defaults** option which deactivates the **paper** and **font** options and prevents the change of the class defaults by this package.

```
17 \DeclareBoolOption[false]{defaults}
```

title Provide the **title** option deactivating redefinitions of title macros.

```
18 \DeclareBoolOption[true]{title}
```

physics Provide the **physics** option for deactivating redefinition of physics macros.

```
19 \DeclareBoolOption[true]{physics}
```

bibliography Provide the **bibliography** option for passing a **style** string to the BIBLATEX package [11] or disabling the automatic loading of **biblatex**.

```
20 \DeclareStringOption[numeric-comp]{bibliography}
```

glossaries Provide the **glossaries** option able to turn of the use of the GLOSSARIES package [12].

```
21 \DeclareBoolOption[true]{glossaries}
```

references Provide the **references** option for preventing the CLEVEREF package from being loaded redefinitions of reference macros.

```
22 \DeclareBoolOption[true]{references}
```

B.2 Compatibility

beamer Provide the **beamer** option for BEAMER [14] compatibility mode.

```
23 \DeclareBoolOption[false]{beamer}
```

revtex Provide the **revtex** option for REVTeX [17] compatibility mode.

```
24 \DeclareBoolOption[false]{revtex}
```

jhep Provide the **jhep** option for JHEP [15] compatibility mode.

```
25 \DeclareBoolOption[false]{jhep}
```

jcap Provide the **jcap** option for JCAP [16] compatibility mode.

```
26 \DeclareBoolOption[false]{jcap}
```

pos Provide the **pos** option for PoS compatibility mode.

```
27 \DeclareBoolOption[false]{pos}
```

`springer` Provide the `springer` option for Springer compatibility mode.

```
28 \DeclareBoolOption[false]{springer}
```

B.3 Reactivation

`eqnarray` Provide the `eqnarray` option for reactivating the `eqnarray` environment.

```
29 \DeclareBoolOption[false]{eqnarray}
```

`manualplacement` Provide the `manualplacement` option for reactivating the manual placement of floats.

```
30 \DeclareBoolOption[false]{manualplacement}
```

B.4 Process options

```
31 \ProcessKeyvalOptions*
```

Read the class options regarding font and paper size.

```
32 \def\hep@get@class#1.cls#2\relax{\def\hep@class{#1}}
33 \def\hep@get@class{\expandafter\hep@get@class\@filelist\relax}
34 \hep@get@class
35 \@ifclasswith{\hep@class}{10pt}{\setkeys{hep}{font=10pt}}{}
36 \@ifclasswith{\hep@class}{12pt}{\setkeys{hep}{font=12pt}}{}
37 \@ifclasswith{\hep@class}{a5paper}{\setkeys{hep}{paper=a5}}{}
38 \@ifclasswith{\hep@class}{b5paper}{\setkeys{hep}{paper=b5}}{}
39 \@ifclasswith{\hep@class}{letterpaper}{\setkeys{hep}{paper=letter}}{}
40 \@ifclasswith{\hep@class}{legalpaper}{\setkeys{hep}{paper=legal}}{}
41 \@ifclasswith{\hep@class}{executivepaper}{%
42   \setkeys{hep}{paper=executive}%
43 }
```

B.5 Set compatibility

Set the `springer` compatibility options.

```
44 \@ifclassloaded{svjour}{\setkeys{hep}{springer}}{}
45 \@ifclassloaded{svjour2}{\setkeys{hep}{springer}}{}
46 \@ifclassloaded{svjour3}{\setkeys{hep}{springer}}{}
47 \ifhep@springer
48   \setkeys{hep}{defaults, title=false}
49   \let\cl@chapter\undefined
50 \fi
```

Set the `pos` compatibility options.

```
51 \@ifclassloaded{PoS}{\setkeys{hep}{pos}}{}
52 \ifhep@pos
53   \setkeys{hep}{defaults, title=false}
54   \DeclareRobustCommand\boldmath{\@nomath\boldmath\mathversion{bold}}
55 \fi
```

Set the beamer compatibility options.

```
56 \@ifclassloaded{beamer}{\setkeys{hep}{beamer}}{}
57 \ifhep@beamer
58   \setkeys{hep}{defaults, title=false, references=false, sansserif}
59   \@ifpackageloaded{beamerbasefont}{\usefonttheme{professionalfonts}}{}
60   \setbeamertemplate{navigation symbols}{}
61 \fi
```

Set the revtex compatibility options.

```
62 \@ifclassloaded{revtex4}{\setkeys{hep}{revtex}}{}
63 \@ifclassloaded{revtex4-1}{\setkeys{hep}{revtex}}{}
64 \@ifclassloaded{revtex4-2}{\setkeys{hep}{revtex}}{}
65 \ifhep@revtex
66   \setkeys{hep}{defaults, title=false, bibliography=false, lang=american}
67 \fi
```

Define the SISSA conditional.

```
68 \@ifpackageloaded{jheppub}{\setkeys{hep}{jhep}}{}
69 \@ifpackageloaded{jcappub}{\setkeys{hep}{jcap}}{}
70 \newif\ifhep@sisssa
71 \ifhep@jhep\hep@sisssatrue
72 \else
73   \ifhep@jcap\hep@sisssatrue
74   \else\hep@sissafalse
75   \fi
76 \fi
```

Set the SISSA compatibility options.

```
77 \ifhep@sisssa
78   \setkeys{hep}{title=false, bibliography=false}
79   \PassOptionsToPackage{
80     colorlinks=true, linktocpage=true, pdfproducer=medialab, pdfa=true,
81     urlcolor=blue, anchorcolor=blue, citecolor=blue, filecolor=blue,
82     linkcolor=blue, menucolor=blue, pagecolor=blue
83   }{hyperref}
84   \PassOptionsToPackage{reset}{geometry}
85   \AtBeginDocument{\renewcommand{\foreignabbrfont}}{}}
86 \fi
```

Set the JHEP compatibility options.

```
87 \ifhep@jhep
88   \voffset 0in
89   \hoffset 0in
90 \fi
```

C Text

Set the whole text to sans serif if requested.

```
91 \ifhep@serif\else
92   \renewcommand{\familydefault}{\sfdefault}
93 \fi
```

`\ifxetexorluatex` Load the `IFLUATEX` [51] and `IFXETEX` [52] packages. Define the `\ifxetexorluatex` conditional checking if the package is executed by `LuaLATEX` or `XLaTEX`.

```
94 \RequirePackage{ifluatex}
95 \RequirePackage{ifxetex}
96 \newif\ifxetexorluatex
97 \ifxetex\etexorluatextrue
98 \else
99   \ifluatex\etexorluatextrue
100 \else\etexorluatexfalse
101 \fi
102 \fi
```

Pick the correct font encoding depending on the engine used and load the `FONTENC` package [53] with this encoding. For details of the font encoding see [54].

```
103 \ifxetexorluatex
104   \def\hep@encoding{TU}
105 \else
106   \def\hep@encoding{T1}
107 \fi
108 \RequirePackage[\hep@encoding]{fontenc}
```

Fix the remaining CM fonts [55], load the LM font via `CFR-LM` [3] supported also by `LMODERN` [56], the `TEXTCOMP` extension [57], and the `MICROTYPE` font optimization [4]. Adjust the figures according to the `lining` option and ensure that tables always use lining, using the `ETOOLBOX` package [58].

```
109 \RequirePackage{fix-cm}
110 \RequirePackage{microtype}
111 \ifxetexorluatex
112   \RequirePackage{nfssexp-cfr}
113   \RequirePackage{lmodern}
114 %   \RequirePackage{fontsetup} % problematic
115 \else
116   \ifhep@lining
117     \RequirePackage[rm={lining},sf={lining},tt={lining}]{cfr-lm}
118   \else
119     \RequirePackage{cfr-lm}
120   \fi
121 \fi
122 \RequirePackage{etoolbox}
```

```

123 % \AtBeginEnvironment{tabular}{\tlstyle}
124 \RequirePackage{textcomp}

```

Define bold and sans serif small caps font shapes using the FONTSPEC package [59].
The font abbreviations are

lmr LM regular font
lmss LM sans serif font
cmss CM sans serif font
xcmss Extended CM sans serif font (from the SANSMATHFONTS package [26])
bx Bold extended series
b Bold series
m Medium weight and width series
c Medium weight, condensed width series
sc Caps and small caps font shape

```

125 \newcommand{\hep@sf@fontshape}[3]{%
126   \DeclareFontShape{\hep@encoding}{\sfdefault}{#1}{#2}{#3}{}%
127 }
128 \newcommand{\hep@rm@fontshape}[3]{%
129   \DeclareFontShape{\hep@encoding}{\rmdefault}{#1}{#2}{#3}{}%
130 }
131 \ifxetexorluatex
132   \RequirePackage{fontspec}
133   \setmainfont{Latin Modern Roman}[
134     UprightFeatures={SmallCapsFont={\lmromancaps10-regular.otf}}},
135     BoldFeatures={
136       SmallCapsFeatures={Letters=SmallCaps},
137       SmallCapsFont={\cmunbx.otf}
138     }
139   ]
140   \hep@sf@fontshape{bx}{sc}{<->cmssbxcsc10}{%
141   \hep@sf@fontshape{b}{sc}{<->cmssbxcsc10}{%
142   \hep@sf@fontshape{m}{scit}{<->cmsscsci10}{%
143   \hep@sf@fontshape{m}{sc}{%
144     <-9>cmsscsc8<9-10>cmsscsc9<10->cmsscsc10%
145   }{}
146   \else
147     \rmfamily
148     \RequirePackage{slantsc}
149     \hep@rm@fontshape{b}{sc}{<->ssub*cmr/bx/sc}{%
150     \hep@rm@fontshape{bx}{sc}{<->ssub*cmr/bx/sc}{%
151     \hep@rm@fontshape{b}{scsl}{<->ssub*cmr/bx/scsl}{%
152     \hep@rm@fontshape{bx}{scsl}{<->ssub*cmr/bx/scit}{%
153     \hep@rm@fontshape{b}{scit}{<->ssub*cmr/bx/scsl}{%
154     \hep@rm@fontshape{bx}{scit}{<->ssub*cmr/bx/scit}{%
155     \sffamily
156     \hep@sf@fontshape{m}{sc}{<->ssub*xcmss/m/sc}{%
157     \hep@sf@fontshape{b}{sc}{<->ssub*xcmss/bx/sc}{%
158     \hep@sf@fontshape{bx}{sc}{<->ssub*xcmss/bx/sc}{%

```

```

159 \hep@sf@fontshape{m}{scit}{<->ssub*xcms/m/scit}{}
160 \hep@sf@fontshape{b}{scit}{<->ssub*xcms/bx/scit}{}
161 \hep@sf@fontshape{bx}{scit}{<->ssub*xcms/bx/scit}{}
162 \hep@sf@fontshape{m}{scsl}{<->ssub*xcms/m/scit}{}
163 \hep@sf@fontshape{b}{scsl}{<->ssub*xcms/bx/scit}{}
164 \hep@sf@fontshape{bx}{scsl}{<->ssub*xcms/bx/scit}{}
165 \hep@sf@fontshape{m}{ui}{<->cmssu10}{}
166 \fi

```

Load the INPUTENC package [60].

```

167 \ifxetexorluatex\else
168 \RequirePackage[utf8]{inputenc}
169 \fi

```

Load the BABEL package [6] for hyphenation and the recommended CSQUOTES package [21].

```

170 \RequirePackage[\hep@lang]{babel}
171 \RequirePackage[autostyle]{csquotes}

```

`\underline` Load the ULEM package [27] for hyphenable underlined text.

```

172 \RequirePackage[normalem]{ulem}
173 \let\underline\uuline

```

C.1 Font size

Undefine previously defined font sizes and load the L^AT_EX font size file corresponding to the font size option.

```

174 \ifhep@defaults\else
175 \def\hep@remove@pt#1pt{#1}
176 \edef\hep@pt@size{\expandafter\hep@remove@pt\hep@font}
177 \let\small\relax
178 \let\footnotesize\relax
179 \let\scriptsize\relax
180 \let\tiny\relax
181 \let\large\relax
182 \let\Large\relax
183 \let\LARGE\relax
184 \let\huge\relax
185 \let\Huge\relax
186 \input{size\hep@pt@size.clo}
187 \fi

```

C.2 Text macros

`\vs` Load the FOREIGN package [22] in order to highlight abbreviations and vocabularies from foreign languages. Add the missing `\vs` command.

```

188 \ifnum\pdf@strcmp{\hep@lang}{american}=0
189   \newcommand{\hep@lang@foreign}{USenglish}
190 \else
191   \ifnum\pdf@strcmp{\hep@lang}{USenglish}=0
192     \newcommand{\hep@lang@foreign}{USenglish}
193   \else
194     \newcommand{\hep@lang@foreign}{british}
195   \fi
196 \fi
197 \RequirePackage[all, \hep@lang@foreign]{foreign}
198 \DeclareRobustCommand\vs{\xperiodafter{\foreignabbrfont{vs}}}}

```

The FOREIGN package relies on the XSPACE package [61]. Ensure that `\xspace` is compatible with the `\enquote` macro from the CSQUOTE package.

```

199 \xspaceaddexceptions{\csq@qclose@i}

```

`\no` Define the macro `\no{<number>}` for the use of \mathbb{N} with appropriate spacing.

```

200 \newcommand{\no}[1]{\textnumero~#1}

```

`\software` Define a macro for software with optional version information `\software{<version>}{<name>}`, using the RELSIZE package [62].

```

201 \RequirePackage{relsize}
202 \newcommand{\software}[2][\hspace{-\fontdimen2\font}]{%
203   {\smaller[.5]\textsc{#2}~#1}%
204 }

```

`\online` Define the `\online{<text>}{<url>}` macro combining the features of the `\href` and `\email` the `\url` macros. Define a macro for typesetting emails.

```

205 %</package>
206 %<*package|title|bibliography>
207 \providecommand{\online}[2]{\ttfamily{#2}}%
208 \providecommand{\email}[1]{\online{mailto:#1}{#1}}
209 \AtEndOfPackage{\@ifpackageloaded{hyperref}{%
210   \renewcommand{\online}[2]{\href{#1}{\nolinkurl{#2}}}%
211   }{}
212 }
213 %</package|title|bibliography>
214 %<*package>

```

`\prefix` Define the `\prefix{<prefix>}{<word>}` macro ensuring the correct linebreak in (prefix-) word.

```

215 \newcommand{\prefix}[2]{(#1\mbox{-})\allowbreak #2}

```

C.3 Lists

Load the ENUMITEM package [24].

```
216 \RequirePackage[inline]{enumitem}
```

`inlinelist` Define an inline list environment.

```
217 \newlist{inlinelist}{enumerate*}{1}
218 \setlist*[inlinelist,1]{%
219   label=\roman*), itemjoin={,\ }, itemjoin*={, and\ }, after=.%
220 }
```

`enumdescript` Define an enumdescript list environment.

```
221 \newlist{enum@descript}{enumerate}{2}
222 \setlist[enum@descript]{label=\arabic*.}
223 \newenvironment{enumdescript}[1][]{
224   \begin{enum@descript}[#1]
225     \let\hep@item\item
226     \renewcommand{\item}[2][]{
227       \ifx&##1&\hep@item\else\hep@item[##1]\fi
228       \textbf{##2}\ifx##2\empty\else~\fi\@ifnextchar\par\@gobble\relax
229     }
230   }\end{enum@descript}}
```

`commalist` Define a commalist environment.

```
231 %</package>
232 %<*package|bibliography>
233 \RequirePackage{xparse}
234 \ExplSyntaxOn
235 \NewDocumentEnvironment{commalist}{0{\space}+b}{
236   \hep@comma@list:n{#2}
237 }{#1}
238 \seq_new:N \hep@items@sequence
239 \cs_new_protected:Npn \hep@comma@list:n #1{
240   \seq_set_split:Nnn \hep@items@sequence{\item}{#1}
241   \seq_pop_left:NN \hep@items@sequence \l_tmpa_tl
242   \seq_use:Nnnn \hep@items@sequence{~and~}{,~}{,~and~}
243 }
244 \ExplSyntaxOff
245 %</package|bibliography>
246 %<*package>
```

D Geometry

Load the GEOMETRY package [2] and adjust the text width and height. This step must happen after readjusting the font size in appendix C.1.


```

247 \ifhep@defaults\else
248   \RequirePackage{geometry}
249   \geometry{\hep@paper paper, includeheadfoot}
250   \if@twocolumn
251     \geometry{hscale=.85, vscale=.925, vmarginratio=1:1}
252     \geometry{headsep=2ex, footskip=6ex}
253     \setlength{\columnsep}{1.1em}
254   \else
255     \geometry{hscale=.75, vscale=.8, vmarginratio=3:4}
256   \fi
257 \fi

```

`\useparskip` Load the PARSKIP package [7] if requested and provide two commands switching
`\useparindent` between the two paragraph modes.

```

258 \ifhep@parindent\else
259 \RequirePackage{parskip}
260 \newcommand{\useparskip}{\%
261   \setlength{\parskip}{.5\baselineskip plus 2pt}%
262   \setlength{\parindent}{0pt}%
263 }
264 \newcommand{\useparindent}{\%
265   \setlength{\parskip}{0pt}%
266   \setlength{\parindent}{15pt}%
267   \if@twocolumn\setlength{\parindent}{1em}
268   \else\setlength{\parindent}{1.5em}
269   \fi
270 }
271 \fi

```

E Math

Load the MATHTOOLS package [28] which loads the AMSMATH package [29]. Allow page breaks within equations if necessary. Adjust the thick and med mu skips slightly.

```

272 \RequirePackage{mathtools}
273 \allowdisplaybreaks[1]
274 \thickmuskip=5mu plus 3mu minus 1mu
275 \medmuskip=4mu plus 2mu minus 3mu

```

`\diag` Provide the `\diag` and `\sgn` operators
`\sgn`

```

276 \DeclareMathOperator{\diag}{diag}
277 \DeclareMathOperator{\sgn}{sgn}

```

`\mathdef` Define the `\mathdef{⟨name⟩}{⟨arguments⟩}{⟨macro⟩}` macro which (re-)defines macros in math mode only. This macro is implemented using the XPARSE package [63].

```

278 %</package>

```

```

279 %<*package|acronyms>
280 \RequirePackage{xparse}
281 \DeclareDocumentCommand{\mathdef}{m0{0}m}{%
282   \expandafter\let\csname text\string#1\endcsname=#1
283   \expandafter\newcommand\csname math\string#1\endcsname[#2]{#3}
284   \DeclareRobustCommand#1{%
285     \ifmmode
286       \expandafter\let\expandafter\next\csname math\string#1\endcsname
287     \else
288       \expandafter\let\expandafter\next\csname text\string#1\endcsname
289     \fi
290     \next
291   }%
292 }
293 %</package|acronyms>
294 %<*package>

```

`\i` Provide an upright imaginary unit in math mode.

```

295 \AtBeginDocument{\mathdef{\i}{\operatorname{i}}}

```

`\overline` Redefine `\overline` to be a text macro using the ULEM package [27]. Extend it as a math macro with the original definition from the AMSMATH package [29].

```

296 \def\overline#1{{\renewcommand{\ULdepth}{-1.9ex}}{\uline{#1}}}
297 \DeclareRobustCommand{\over@line}[1]{\@@overline{#1}}
298 \mathdef{\overline}{\over@line}

```

`\left` Load the MLEFTRIGHT package [64] and adjust the spacing around `\left` and `\right`.
`\right`

```

299 \RequirePackage{mleftright}
300 \mleftright

```

`eqnarray` Undefine the `eqnarray` environment if not prevented by package option.

```

301 \ifhep@eqnarray\else
302   \let\eqnarray\@undefined
303   \let\endeqnarray\@undefined
304 \fi

```

E.1 Math fonts

Define conditionals based on the `symbols` package option.

```

305 \newif\ifhep@symbols
306 \ifnum\pdf@strcmp{\hep@symbols}{false}=0\else\hep@symbolstrue\fi
307 \newif\ifhep@ams
308 \ifnum\pdf@strcmp{\hep@symbols}{ams}=0 \hep@amstrue\fi
309 \newif\ifhep@minion
310 \ifnum\pdf@strcmp{\hep@symbols}{minion}=0 \hep@miniontrue\fi

```

Load the `FIXMATH` [33] and `ALPHABETA` [34] packages ensuring that upper Greek letters in math mode are italic and providing upright Greek letters in text mode, respectively. Ensure that this works also after loading other fonts packages such as `CFR-LM` using `SUBSTITUTEFONT` [65].

```

311 \ifhep@symbols
312   \RequirePackage{fixmath}
313   \RequirePackage{alphabeta}
314   \RequirePackage{substitutefont}
315   \ifxetexorluatex
316     % missing code
317   \else
318     \substitutefont{LGR}{\rmdefault}{\lmr}
319     \DeclareFontFamily{LGR}{\rmdefault}{b}{n}{<->ssub*lmr/bx/n}{}
320     \DeclareFontShape{LGR}{\rmdefault}{b}{n}{<->ssub*lmr/bx/n}{}
321     \DeclareFontShape{LGR}{\rmdefault}{b}{sc}{<->ssub*lmr/bx/sc}{}
322     \substitutefont{LGR}{\ttdefault}{\lmtt}
323     \DeclareFontFamily{LGR}{\ttdefault}{b}{n}{<->ssub*cmtt/bx/n}{}
324     \DeclareFontShape{LGR}{\ttdefault}{b}{n}{<->ssub*cmtt/bx/n}{}
325     \substitutefont{LGR}{\sfdefault}{\lmss}
326     \DeclareFontFamily{LGR}{\sfdefault}{b}{n}{<->ssub*lmss/bx/n}{}
327     \DeclareFontShape{LGR}{\sfdefault}{b}{n}{<->ssub*lmss/bx/n}{}
328     \DeclareFontShape{LGR}{\sfdefault}{b}{sc}{<->ssub*lmss/bx/sc}{}
329   \fi

```

Either load the `MNSYMBOL` package [10] or the `EXSCALE` package in order to fix Latin Modern `lmex` fonts. Additionally, load the `AMSSYMB` package [8] which provides further math symbols and also loads the `AMSFONTS` package [8].

```

330 \ifhep@minion
331   \RequirePackage{MnSymbol}
332 \else
333   \RequirePackage{exscale}
334   \RequirePackage{amssymb}
335 \fi
336 \fi

```

`\mathsf` If the `sansserif` package option is active use the `CMBRIGHT` font [45] and code adjusted from the `SANSMATHFONTS` package [26]. Ensure that `\mathsf` is italic as well as sans serif and sans for sans and sans serif documents, respectively.

```

337 \ifhep@serif
338   \newcommand\hep@font@sf{cmbrm}
339   \DeclareMathAlphabet{\mathsf}{OML}{\hep@font@sf}{m}{it}
340   \SetMathAlphabet{\mathsf}{bold}{OML}{\hep@font@sf}{b}{it}
341 \else
342   \newcommand\hep@font@sf{\lmr}
343   \newcommand\hep@font@text{\lmss}
344   \newcommand\hep@font@math{cmbrm}
345   \newcommand\hep@font@symbol{cmssy}

```

```

346 \newcommand\hep@font@extra{cmssex}
347 \newcommand\hep@font@amsa{ssmsa}
348 \newcommand\hep@font@amsb{ssmsb}

```

Declare font substitutions.

```

349 \DeclareFontSubstitution{OML}{\hep@font@math}{m}{it}
350 \ifhep@symbols\ifhep@minion\else
351   \DeclareFontSubstitution{OMS}{\hep@font@symbol}{m}{n}
352   \DeclareFontSubstitution{OMX}{\hep@font@extra}{m}{n}
353 \fi\fi

```

Declare the symbol fonts.

```

354 \DeclareSymbolFont{operators}{OT1}{\hep@font@text}{m}{n}
355 \DeclareSymbolFont{letters}{OML}{\hep@font@math}{m}{it}
356 \ifhep@symbols\ifhep@minion\else
357   \DeclareSymbolFont{symbols}{OMS}{\hep@font@symbol}{m}{n}
358   \DeclareSymbolFont{largesymbols}{OMX}{\hep@font@extra}{m}{n}
359 \fi\fi

```

Set bold symbol fonts.

```

360 \SetSymbolFont{operators}{bold}{OT1}{\hep@font@text}{b}{n}
361 \SetSymbolFont{letters}{bold}{OML}{\hep@font@math}{b}{it}
362 \ifhep@symbols\ifhep@minion\else
363   \SetSymbolFont{symbols}{bold}{OMS}{\hep@font@symbol}{b}{n}
364 \fi\fi

```

Adjust the fonts loaded by the AMSFONTS [8] and ESINT [66] packages.

```

365 \ifhep@symbols\ifhep@minion\else
366   \DeclareSymbolFont{AMSA}{U}{\hep@font@amsa}{m}{n}
367   \DeclareSymbolFont{AMSB}{U}{\hep@font@amsb}{m}{n}
368 \fi\fi
369 \AtBeginDocument{%
370   \@ifpackageloaded{esint}{%
371     \DeclareSymbolFont{largesymbolsA}{U}{ssesint}{m}{n}
372   }{}
373 }

```

Declare the symbol font alphabets.

```

374 \DeclareSymbolFontAlphabet{\mathrm}{operators}
375 \DeclareSymbolFontAlphabet{\mathnormal}{letters}
376 \ifhep@minion\else
377   \DeclareSymbolFontAlphabet{\mathcal}{symbols}
378 \fi

```

Declare `\mathit`.

```

379 \DeclareMathAlphabet{\mathit}{OML}{\hep@font@text}{m}{it}
380 \SetMathAlphabet{\mathit}{bold}{OML}{\hep@font@text}{bx}{it}

```

Declare `\mathhtt`.

```
381 \DeclareMathAlphabet{\mathhtt}{OT1}{cmtl}{m}{n}
```

Declare `\mathsf`.

```
382 \DeclareMathAlphabet{\mathsf}{OML}{\hep@font@sf}{m}{it}
383 \SetMathAlphabet{\mathsf}{bold}{OML}{\hep@font@sf}{bx}{it}
```

End of `sansserif`.

```
384 \fi
```

`\mathbf` Load the `BM` package [30] for superior boldmath. Make math symbols bold whenever they appear in bold macros such as `\section{<text>}`.

```
385 \ifhep@symbols
386 \RequirePackage{bm}
387 \AtBeginDocument{\let\mathbf\bm}
388 \g@addto@macro\bfseries{\boldmath}
```

`\mathscr` Provide the `\mathscr` math script font from the `MATHRSFS` package [48].

```
389 \DeclareMathAlphabet{\mathscr}{U}{rsfs}{m}{n}
```

`\mathbb` Redefine the the `\mathbb` math blackboard style font according to the (sans-)serif option with the font from the `DSFONT` package [9].

```
390 \ifhep@minion
391 \DeclareMathAlphabet{\mathbb}{U}{%
392 \ifhep@serif dsrom\else dsss\fi%
393 }{m}{n}
394 \else
395 \ifhep@ams\else
396 \SetMathAlphabet{\mathbb}{normal}{U}{%
397 \ifhep@serif dsrom\else dsss\fi%
398 }{m}{n}
399 \fi
400 \fi
401 \fi
```

E.2 Physics notation

`\cancel` Load the `PHYSICS` package [35] which provides macros useful for publications in physics. Fix the `\eval` macro. Additionally, load the `CANCEL` [36] and `SLASHED` [37] packages which provide the `\cancel` and `\slashed` macros.

```
402 \ifhep@physics
403 \RequirePackage{physics}
```

```

404 \RequirePackage{cancel}
405 \RequirePackage{slashed}
406 \DeclareDocumentCommand\evaluated{sgd[|d|]{%
407   \IfNoValueTF{#2}{%
408     \IfNoValueTF{#3}{%
409       \IfNoValueTF{#4}{\argopen.\argclose\rvert}{%
410         \IfBooleanTF{#1}{\vphantom{#4}}{}%
411         \left(\IfBooleanTF{#1}{\smash{#4}}{#4}\right\rvert%
412       }%
413     }%
414     \IfBooleanTF{#1}{\vphantom{#3}}{}%
415     \left[\IfBooleanTF{#1}{\smash{#3}}{#3}\right\rvert%
416     \IfNoValueTF{#4}{}{(#4)}%
417   }%
418 }%
419 \IfBooleanTF{#1}{\vphantom{#2}}{}%
420 \left.\IfBooleanTF{#1}{\smash{#2}}{#2}\right\rvert%
421 \IfNoValueTF{#3}{}{[#3]}\IfNoValueTF{#4}{}{(#4)}%
422 }%
423 }

```

`\unit` Load the `UNITS` package [32] which provides the `\units` and `\nicefrac` macros. Patch the `\unit` and `\unitfrac` macros to work with lining numerals using the `XPATCH` package [67].

```

424 \RequirePackage{units}
425 \RequirePackage{xpatch}
426 \ifhep@lining\else
427   \xpatchcmd{\unit}{\else#1}{%
428     \else\ifthenelse{\boolean{mmode}}{#1}{\textl{#1}}%
429   }{}{}
430   \xpatchcmd{\unitfrac}{\else#1}{%
431     \else\ifthenelse{\boolean{mmode}}{#1}{\textl{#1}}%
432   }{}{}
433 \fi

```

`\inv` Provide the `\textfrac` macro.

```

434 \newcommand{\textfrac}[2]{\ensuremath{\nicefrac{\text{#1}}{\text{#2}}}}

```

`\inv` Provide a macro for the inverse, useful in combination with the `unit` macro in text mode.

```

435 \newcommand{\inv}[2][1]{#2\ensuremath{\sim^{-#1}}}

```

`\d` Provide a differential `\d`.

```

436 \AtBeginDocument{\mathdef{\d}{\dd}}

```

`\oset` Define a new overset macro `\oset[$\langle offset \rangle$]{ $\langle over \rangle$ }{ $\langle base \rangle$ }`

```

437 \newcommand{\oset}[3][-1pt]{%
438   \text{\raisebox{.2ex}{ $\mathop{\#3}\limits^{\%$ 
439     \vbox to#1{\kern-2\ex@\hbox{ $\scriptscriptstyle\#2$}\vss}%
440   }$}}}%
441 }$ 
```

`\overleftright` Define a over left right arrow `\overleftright{ $\langle base \rangle$ }`.

```

442 \newcommand{\overleftright}[1]{\oset{\leftrightarrow}{#1}}
```

End of physics conditional.

```

443 \fi
```

F Floats

Adjust the L^AT_EX float placement defaults

```

444 \setcounter{bottomnumber}{0} % 1
445 \setcounter{topnumber}{1} % 2
446 \setcounter{dbltopnumber}{1} % 2
447 \renewcommand{\topfraction}{.9} % .7
448 \renewcommand{\dbltopfraction}{.9} % .7
449 \renewcommand{\textfraction}{.1} % .2
450 \renewcommand{\floatpagefraction}{.8} % .5
```

`figure` Center the content of `figure` and `table` environments. Ignore the manual placement
`table` if the `manualplacement` option is set to false.

```

451 \let\@figure@\figure%
452 \let\@end@figure@\endfigure%
453 \let\@table@\table%
454 \let\@end@table@\endtable%
455 \ifhep@manualplacement%
456   \renewenvironment{figure}[1][tbp]{%
457     \@figure@[#1]\centering%
458   }\@end@figure@}%
459   \renewenvironment{table}[1][tbp]{%
460     \@table@[#1]\centering%
461   }\@end@table@}%
462 \else%
463   \renewenvironment{figure}[1][]{%
464     \@figure@\centering%
465   }\@end@figure@}%
466   \renewenvironment{table}[1][]{%
467     \@table@\centering%
468   }\@end@table@}%
469 \fi%
```

F.1 Sub-floats

`\ifhep@journal` Define a new journal conditional.

```
470 \newif\ifhep@journal
471 \ifhep@sissa\hep@journaltrue
472 \else
473   \ifhep@revtex\hep@journaltrue
474   \else
475     \ifhep@pos\hep@journaltrue
476     \else
477       \ifhep@springer\hep@journaltrue
478       \else\hep@journalfalse
479     \fi
480   \fi
481 \fi
482 \fi
```

Prevent the `CAPTION` package [68] from complaining about the journal classes and packages.

```
483 \ifhep@journal
484   \setlength\abovecaptionskip{\f@size\p@}
485   \setlength\belowcaptionskip{0\p@}
486   \long\def\@makecaption#1#2{%
487     \vskip\abovecaptionskip
488     \sbox\@tempboxa{#1: #2}%
489     \ifdim \wd\@tempboxa >\hsize
490       #1: #2\par
491     \else
492       \global \@minipagefalse
493       \hb@xt@\hsize{\hfil\box\@tempboxa\hfil}%
494     \fi
495     \vskip\belowcaptionskip%
496   }
497 \fi
```

Load the `SUBCAPTION` package [38]. Provide the old `\subcaption@minipage` macro.

```
498 \RequirePackage[subrefformat=parens]{subcaption}
499 \captionsetup{font=small}
500 \captionsetup[sub]{font=small}
501 \providecommand*\subcaption@minipage[2]{%
502   \minipage#1[#2]\setcaptionsubtype\relax%
503 }
```

`panels` Define the `panels` environment and the `\panel` macro.

```
\panel
504 \newcommand{\hep@panels@space}{20}
505 \newenvironment{panels}[2][b]{%
```


Define an internal macro for global behaviour.

```

506 \newcommand{\begin@subcaption@minipage}[2][b]{%
507   \caption@withoptargs\subcaption@minipage[##1]{##2}%
508   \centering\vskip 0pt%
509 }

```

Define the `\panel` macro for the case that the number of panels is given.

```

510 \ifdim#2pt>1pt%
511   \newcommand{\hep@panel@space}{%
512     (1-#2*\hep@panels@space)/\hep@panels@space%
513   }%
514   \newcommand{\panel}[1][b]{%
515     \endminipage\hfill\begin@subcaption@minipage[#1]{%
516       \linewidth/#2*\hep@panel@space%
517     }%
518   }%
519   \begin@subcaption@minipage[#1]{\linewidth/#2*\hep@panel@space}%

```

Define the `\panel` macro for the case that the width of the panel is given.

```

520 \else%
521   \newcommand{\panel}[2][b]{%
522     \endminipage\hfill\begin@subcaption@minipage[#1]{##2\linewidth}%
523   }%
524   \begin@subcaption@minipage[#1]{#2\linewidth}%
525 \fi%
526 }\endminipage}

```

Readjust the captions to the revtex class using the RAGGED2E package [69].

```

527 \ifhep@revtex
528   \RequirePackage{ragged2e}
529   \DeclareCaptionFormat{revtex}{#1#2\justifying{#3}}
530   \captionsetup{font=small, format=revtex}
531   \captionsetup[sub]{font=footnotesize, format=plain}
532   \renewcommand{\figurename}{Figure}
533   \renewcommand{\tablename}{Table}
534 \fi

```

F.2 Tables

`tabular` Enhance tabulars with the BOOKTABS and MULTIROW packages [39, 40].

```

535 \RequirePackage{booktabs}
536 \RequirePackage{multirow}

```

F.3 Figures

`\graphic` Provide the `\graphic` macro for the inclusion of figures using the GRAPHICX package [41].

```

537 \RequirePackage{graphicx}
538 \providecommand{\tikzsetnextfilename}[1]{}
539 \newcommand{\graphic}[2][1]{\tikzsetnextfilename{#2}{%
540   \centering\includegraphics[width=#1\linewidth]{#2}\par%
541 }}

```

`\graphics` Provide the `\graphics` macro for the inclusion of figures located in a subfolder.

```

542 \newcommand{\graphics}[1]{\graphicspath{{.#1/}}}

```

G Title page

Begin of title conditional. Define internal conditionals outside. TODO: replace this hack

```

543 \newif\ifhep@first%
544 \newif\ifnewaffil%
545 \ifhep@title

```

</package>

Redefine previous macros just for the title package.

```

546 %<*package|title>

```

`\date` Allow absent date field.

```

547 \date{\vspace{-4ex}}

```

G.1 Titles

Extend the title using the TITLING package [19].

```

548 \RequirePackage{titling}
549 \setlength{\thanksmarkwidth}{1.5em}

```

`\preprintfont` Allow to change the fontface of the individual parts of the title.

```

\seriesfont
\titlefont 550 \let\hep@preprint@font\relax
551 \newcommand{\preprintfont}[1]{\def\hep@preprint@font{#1}}
\subtitlefont 552 \let\hep@series@font\relax
553 \newcommand{\seriesfont}[1]{\def\hep@series@font{#1}}
\editorfont 554 \let\hep@title@font\relax
555 \newcommand{\titlefont}[1]{\def\hep@title@font{#1}}
\authorfont 556 \let\hep@subtitle@font\relax
557 \newcommand{\subtitlefont}[1]{\def\hep@subtitle@font{#1}}
558 \let\hep@editor@font\relax
559 \newcommand{\editorfont}[1]{\def\hep@editor@font{#1}}
560 \let\hep@author@font\relax
561 \newcommand{\authorfont}[1]{\def\hep@author@font{#1}}

```

```

562 \let\hep@affiliation@font\relax
563 \newcommand{\affiliationfont}[1]{\def\hep@affiliation@font{#1}}
564 \let\hep@date@font\relax
565 \newcommand{\datefont}[1]{\def\hep@date@font{#1}}

```

`\series` Define a series.

```

566 \newcommand{\preseries}[1]{\def\hep@pre@series{#1}}
567 \newcommand{\series}[1]{\def\hep@series{#1}}
568 \newcommand{\postseries}[1]{\def\hep@post@series{#1}}

```

`\subtitle` Define a subtitle.

```

569 \newcommand{\presubtitle}[1]{\def\hep@pre@sub@title{#1}}
570 \newcommand{\subtitle}[1]{\def\hep@sub@title{#1}}
571 \newcommand{\postsubtitle}[1]{\def\hep@post@sub@title{#1}}

```

Set standard values mostly taken from the TITLING package, add the font hook, and reduce the date font size.

```

572 \preseries{\begin{center}\Large\hep@series@font}
573 \postseries{\par\end{center}}
574 \pretitle{\begin{center}\LARGE\hep@title@font}
575 \posttitle{\par\end{center}}
576 \presubtitle{\begin{center}\Large\hep@subtitle@font}
577 \postsubtitle{\par\end{center}}
578 \preauthor{%
579   \begin{center}\large\hep@author@font\lineskip.5em\begin{tabular}[t]{c}%
580 }
581 \postauthor{\end{tabular}\par\end{center}}
582 \predate{\begin{center}\hep@date@font}
583 \postdate{\par\end{center}}

```

G.2 Editors

```

584 \newcounter{editors}
585 \newcommand\hep@editorlist{}
586 \newcommand\hep@editors{}

```

`\hep@multi@ref` Transform reference list to list of references.

```

587 \newcommand{\hep@multi@ref}[1]{%
588   \hep@firsttrue%
589   \forcsvlist{%
590     \ifhep@first\hep@firstfalse\else\textsuperscript,\fi\ref%
591   }{#1}%
592 }

```

`\editor` Copy of the authblk author code adjusted for editors.

```

593 \RequirePackage{authblk}
594 \newcommand\editor[2] [] {%
595   \renewcommand{\email}[1]{\unskip\thanks{\online{mailto:##1}{##1}}}%
596   \ifnewaffil%
597     \addtocounter{affil}{1}%
598     \edef\AB@thenote{\arabic{affil}}%
599   \fi%
600   \if\relax#1\relax%
601     \def\AB@note{\AB@thenote}%
602   \else%
603     \def\AB@note{#1}\setcounter{Maxaffil}{0}%
604   \fi%
605   \ifnum\value{editors}>1\relax%
606     \@namedef{@sep\number\c@editors}{\Authsep}%
607   \fi%
608   \addtocounter{editors}{1}%
609   \begingroup%
610     \let\protect\unexpandable\protect \let\and\AB@pand%
611     \def\thanks{\protect\thanks}\def\footnote{\protect\footnote}%
612     \@temptokena=\expandafter{\hep@editors}{%
613       \def\{%
614         \protect\[\@affilsep]\protect\Affilfont\protect\AB@resetsep%
615       }%
616       \xdef\hep@editor{\AB@blk@and#2}%
617       \ifnewaffil%
618         \gdef\AB@las{}\gdef\AB@lasx{\protect\Authand}\gdef\AB@as{}%
619         \xdef\hep@editors{\the\@temptokena\AB@blk@and}%
620       \else%
621         \xdef\hep@editors{\the\@temptokena\AB@as\AB@au@str}%
622         \global\let\AB@las\AB@lasx\gdef\AB@lasx{\protect\Authands}%
623         \gdef\AB@as{\Authsep}%
624       \fi%
625       \gdef\AB@au@str{#2}%
626     }%
627     \@temptokena=\expandafter{\hep@editorlist}%
628     \let\=\editorcr%
629     \xdef\hep@editorlist{%
630       \the\@temptokena%
631       \protect\@nameuse{@sep\number\c@editors}%
632       \protect\Authfont#2%
633       \if\relax#1\relax\else%
634         \ \protect\hep@multi@ref{\AB@note}%
635       \fi%
636     }%
637   \endgroup%
638   \ifnum\value{editors}>2\relax%
639     \@namedef{@sep\number\c@editors}{\Authands}%
640   \fi%
641   \newaffilfalse%
642 }

```

`\preditor` Set editor style

`\postditor`

```

643 \newcommand{\preditor}[1]{\def\hep@pre@editor{#1}}
644 \newcommand{\posteditor}[1]{\def\hep@post@editor{#1}}
645 \preditor{\begin{center}\large\hep@editor@font\lineskip.5em
646   \ifnum\value{editors}>1\relax Editors\else Editor\fi:
647 }
648 \posteditor{\par\end{center}}
```

Show subtitle and editor.

```

649 \renewcommand{\maketitlehookb}{%
650   \ifundefined{hep@sub@title}{}{%
651     \hep@pre@sub@title\hep@sub@title\hep@post@sub@title%
652   }%
653   \ifx\hep@editorlist\AB@empty\else%
654     \hep@pre@editor\hep@editorlist\hep@post@editor%
655   \fi
656 }
```

G.3 Authors

`\author` Allow absent author field. Enable the handling of multiple authors with different affiliations using the AUTHBLK package [20].

```

657 % \author{}
658 %<title>\newif\ifhep@lining\hep@liningtrue
659 \ifhep@lining
660   \renewcommand{\Affilfont}{\small\hep@affiliation@font}
661 \else
662   \renewcommand{\Affilfont}{\small\ostyle\hep@affiliation@font}
663 \fi
664 \renewcommand\Authfont{\hep@author@font}
```

Switch authblk to a label ref system for affiliations.

```

665 \newcounter{affiliation}
666 \renewcommand{\theaffiliation}{%
667   \textsuperscript{\normalfont\arabic{affiliation}}}%
668 }
669 %<title>\RequirePackage{xpatch}
670 \xpatchcmd{\author}{%
671   \protect\Authfont#2\AB@authnote{\AB@note}%
672 }{%
673   \protect\Authfont#2%
674   \if\relax#1\relax\else\protect\hep@multi@ref{\AB@note}\fi%
675 }{}{}
676 \xpatchcmd{\affil}{%
677   \AB@affilnote{\AB@note}%
678 }{%
```

```

679 \protect\refstepcounter{affiliation}\protect\label{\AB@note}%
680 \if\relax#1\relax\else\protect\ref{\AB@note}\fi%
681 }{}{}

```

\email Redefine the email macro to place the email address in a footnote if called from within the **\author** macro **\author{<name> \email{<email>}}**.

```

682 \let\hep@author\author
683 \def\author{%
684   \renewcommand{\email}[1]{\unskip\thanks{\online{mailto:##1}{##1}}}%
685   \hep@author
686 }

```

\affiliation Define the **\affiliation** macro, ensure that linebreaks happen after a comma.

```

687 \newcommand\hep@penalty{\if@twocolumn85\else50\fi}
688 \newcommand\hep@active@comma{,\penalty-\hep@penalty\relax}
689 \newcommand\hep@cat@comma@active{\catcode'\,\active}
690 {\hep@cat@comma@active\gdef,{\hep@active@comma}}
691 \newcommand\hep@affil[1]{%
692   \endgroup\@flushglue=0pt plus .5\linewidth\affil{#1}%
693 }
694 \def\hep@affil@opt[#1]#2{%
695   \endgroup\@flushglue=0pt plus .5\linewidth\affil[#1]{#2}%
696 }
697 \DeclareRobustCommand\hep@affiliation{%
698   \@ifnextchar[{\hep@affil@opt}{\hep@affil}%
699 }
700 \newcommand{\affiliation}{%
701   \begingroup\hep@cat@comma@active\hep@affiliation%
702 }

```

G.4 Preprint

\preprint Define the **\preprint** macro using the VARWIDTH package [70].

```

703 \let\hep@preprint\relax
704 \newcommand\preprint[1]{\def\hep@preprint{#1}}
705 \RequirePackage{varwidth}
706 %<title>\RequirePackage{relsize}
707 \newcommand{\hep@preprint@box}{%
708   \begin{varwidth}{\textwidth}%
709     \smaller[.5]\hep@preprint@font\hep@preprint%
710   \end{varwidth}%
711 }
712 \preprintfont{\scshape}

```

\placepreprint Places a preprint number in the top right corner of the title page using the AT-BEGSHI [71] and PICTURE [72] packages.

```

713 %<title>\RequirePackage{calc}
714 \RequirePackage{atbegshi}
715 \RequirePackage{picture}
716 \newcommand{\placepreprint}{%
717   \AtBeginShipoutFirst{%
718     \put(
719       \textwidth+\oddsidemargin-\widthof{\hep@preprint@box},
720       -2pt-\topmargin-\heightof{\hep@preprint@box}
721     ){\normalfont\hep@preprint@box}
722   }
723 }
724 \renewcommand{\maketitlehooka}{%
725   \placepreprint\vspace{-\bigskipamount}%
726   \@ifundefined{hep@series}{\}%
727   \hep@pre@series\hep@series\hep@post@series%
728   }%
729 }

```

G.5 Abstract

abstract Adjust the abstract environment to not start with indentation.

```

730 \@ifundefined{abstract}{\}%
731   \let\hep@abstract\abstract%
732   \renewcommand\abstract{\hep@abstract\noindent\ignorespaces}%
733 }

```

abstract* Add a **abstract*** environment for two column mode taking also care of placing the title using the `ENVIRON` [73] and `ABSTRACT` [74] packages.

```

734 \if@twocolumn
735   \RequirePackage{environ}
736   \RequirePackage{abstract}
737   \renewcommand{\abstitlekip}{-3ex}
738   \NewEnviron{abstract*}{%
739     \twocolumn[\maketitle\vspace{-5ex}%
740     \begin{onecolabstract}\noindent\BODY\end{onecolabstract}%
741     \vspace{.5cm}]\saythanks%
742   }
743 \else
744   \newenvironment{abstract*}{\maketitle\begin{abstract}}{\end{abstract}}
745 \fi
746 %</package|title>

```

<*package>

End of title conditional.

```
747 \fi
```

H Bibliography

Check if bibliography management is requested.

```
748 \ifnum\pdf@strcmp{\hep@bibliography}{false}=0\else  
  
</package>
```

```
749 %<*package|bibliography>  
750 %<|bibliography>\def\hep@bibliography{numeric-comp}  
751 %<|bibliography>\newif\ifhep@journal\hep@journalfalse
```

`\bibliography` Load the BIBLATEX package [11] with the datamodel defined in appendix K.

```
752 \RequirePackage[style=\hep@bibliography, datamodel=hep-paper]{biblatex}
```

`hep-paper` Provide the `\DeclareSortingTemplate` macro for older `biblatex` installations. Define a new sorting template that sorts only multi key `\cite` entries according to their date and leaves the rest of the bibliography entries in the order they appear in the text.

```
753 \providecommand{\DeclareSortingTemplate}{\DeclareSortingScheme}  
754 \DeclareSortingTemplate{hep-paper}{  
755   \sort{\citeorder}  
756   \sort[final]{\field{sortkey}}  
757   \sort{\field{sortyear} \field{year} \literal{9999}}  
758   \sort{\field{month}}  
759   \sort{\field{eprint} \field{doi}}  
760   \sort{\field{sorttitle} \field{title}}  
761   \sort{\field{subtitle} \field{volume}}  
762 }
```

Use the new sorting scheme and abbreviat all first names.

```
763 \ExecuteBibliographyOptions{  
764   sorting=hep-paper,  
765   safeinputenc,  
766   giveninits=true,  
767   maxbibnames=7  
768 }
```

Shrink the bibliography in two column mode.

```
769 \ifhep@journal\else  
770   \if@twocolumn  
771     \AtBeginBibliography{\small}  
772     \setlength\biblabeledsep{\labelsep}  
773   \fi  
774 \fi
```

`erratum` Redefine the `translationof` string to fit better to documents without a original title.

775 \DefineBibliographyStrings{english}{translationof={Original}}

erratum Add new bibliography string ‘Erratum’ for the use in the `relatedtype` field.

776 \NewBibliographyString{erratum,erratums}
 777 \DefineBibliographyStrings{english}{erratum={Erratum},erratums={Errata}}
 778 \providecommand{\relateddelimerratum}{\addsemicolon\space}

Activate the Oxford comma when using `british` and separate title and subtitle with a colon.

779 \DefineBibliographyExtras{british}{\def\finalandcomma{\addcomma}}
 780 \renewcommand{\subtitlepunct}{\addcolon\addspace}

\printbibliography Allow the bibliography to be printed sloppy

781 \let\hep@printbibliography\printbibliography
 782 \renewcommand{\printbibliography}{\sloppy\hep@printbibliography}

H.1 Sourcemap

\reg@exp@one Define regular expressions in order to deal with inconsistent journal title and volume
\reg@exp@two naming as well as uniform resource locator (URL) protocols and the PMCID.

\reg@exp@url
\reg@exp@pmc 783 \newcommand{\reg@exp@one}{\regexp{\A(\p{L}+)?\d+(\p{L}+)?\Z}}
 784 \newcommand{\reg@exp@two}{\regexp{\A(\p{L}+)?(\d+)(\p{L}+)?\Z}}
 785 \newcommand{\reg@exp@url}{\regexp{\A(ht|f)tp(s)?:\./\./}}
 786 \newcommand{\reg@exp@pmc}{\regexp{\A(PMC)?}}

\DeclareSourcemap Use the `\DeclareSourcemap` feature.

787 \DeclareSourcemap{%
 788 \maps[datatype=bibtex, overwrite=true]{%

collaboration Read the collaboration information if present.

789 \map{%
 790 \step[fieldsource=Collaboration, final=true]%
 791 \step[fieldset=collaboration, origfieldval, final=true]
 792 }%

reportnumber Read the pre-print information if present.

793 \map{%
 794 \step[fieldsource=reportNumber, final=true]%
 795 \step[fieldset=reportnumber, origfieldval, final=true]
 796 }%

journal Move letters from the volume field to the journal field.

```
797 \map[overwrite]{
798   \pertype{article}
799   \step[fieldsource=volume, match=\reg@exp@one, final]
800   \step[fieldsource=volume, match=\reg@exp@two, replace={$2}]
801   \step[fieldsource=journal, fieldtarget=journaltitle]
802   \step[fieldset=journaltitle, fieldvalue={\space$1$2}, append=true]
803 }
```

url Remove the protocol from URL.

```
804 \map{
805   \step[fieldsource=url, final=true]
806   \step[fieldset=protocollessurl, origfieldval, final=true]
807   \step[fieldsource=protocollessurl, match=\reg@exp@url, replace={}]
808 }
```

pmc Remove the PMC from the PMCID.

```
809 \map{
810   \step[fieldsource=pmcid, final=true]
811   \step[fieldset=pmc, origfieldval, final=true]
812   \step[fieldsource=pmc, match=\reg@exp@pmc, replace={}]
813 }
814 }%
815 }
```

\letbibmacro Provide the \letbibmacro macro for old biblatex installations.

```
816 \providecommand{\letbibmacro}[2]{\csletcs{abx@macro@#1}{abx@macro@#2}}
```

collaboration Execute the author macro even if only the collaboration information if present and override the author information with collaboration information if present.

```
817 \renewbibmacro*{author/translator+others}{%
818   \ifboolexpr{
819     test \ifuseauthor and (
820       not test {\ifnameundef{author}} or
821       not test {\iffieldundef{collaboration}}
822     )
823   }
824   {\usebibmacro{author}}
825   {\usebibmacro{translator+others}}
826 }
827 \letbibmacro{hep@bib@author}{author}
828 \renewbibmacro*{author}{%
829   \iffieldundef{collaboration}{%
830     \usebibmacro{hep@bib@author}}{\textit{\printfield{collaboration}}}%
831   }%
832 }
```

In: Remove spurious 'In:' if no journal is present.

```
833 \renewbibmacro*{in:}{%
834   \iffielddundef{journaltitle}}{\printtext{\bibstring{in}\intitlepunct}}%
835 }
```

reportnumber Print the reportnumber as commalist

```
836 %<bibliography>\RequirePackage{relsize}
837 \DeclareFieldFormat{reportnumber}{%
838   \edef\commalistbody{\forcsvfield{%
839     \egroup\noexpand\item\unexpanded{\bgroup\smaller[.5]\textsc}
840   }\reportnumber}}%
841   \expandafter\commalist\commalistbody\egroup\endcommalist%
842 }
```

url Show URLs without the protocol.

```
843 \DeclareFieldFormat{url}{%
844   \mkbibacro{URL}\addcolon\space\online{#1}{\thefield{protocollessurl}}%
845 }
```

\bib@online Private \bib@online macro

```
846 \newcommand{\bib@online}[2]{%
847   \ifhyperref{\online{#1}{#2}}{\nolinkurl{#2}}%
848 }
```

pmid Present PubMed IDs.

pmcid

```
849 \DeclareFieldFormat{pmid}{%
850   \mkbibacro{PM}\addcolon\space%
851   \bib@online{https://www.ncbi.nlm.nih.gov/pubmed/#1}{#1}%
852 }
853 \DeclareFieldFormat{pmc}{%
854   \mkbibacro{PMC}\addcolon\space%
855   \bib@online{https://www.ncbi.nlm.nih.gov/pmc/articles/PMC#1}{#1}%
856 }
```

pmcid Add the pre-print and PubMed information if present.

pmid

reportnumber

```
857 \letbibmacro{hep-doi+eprint+url}{doi+eprint+url}
858 \renewbibmacro*{doi+eprint+url}{%
859   \usebibmacro{hep-doi+eprint+url}
860   \iffielddundef{pmc}{%
861     \iffielddundef{pmid}}{\printfield{pmid}\newunit}%
862   }\printfield{pmc}\newunit}
863   \iffielddundef{reportnumber}}{\%
864     \newunitpunct\textnumero\intitlepunct%
865     \printfield{reportnumber}\newunit%
```

```

866 }%
867 }

```

H.2 Eprints

`\new@eprint` Private `\new@eprint` macro

```

868 \NewDocumentCommand{\new@eprint}{smm}{
869   \DeclareFieldFormat{eprint:#2}{%
870     \newcommand{\@path}{\IfBooleanT{#1}{\thefield{eprintclass}}/##1}%
871     #2\addcolon\space\bib@online{#3/\@path}{\@path}%
872   }%
873 }

```

CTAN Add CTAN as a eprint option

```

874 \new@eprint{CTAN}{https://ctan.org/pkg}
875 \DeclareFieldAlias{eprint:ctan}{eprint:CTAN}

```

GitHub Add GitHub as a eprint option

```

876 \new@eprint*{GitHub}{https://github.com}
877 \DeclareFieldAlias{eprint:github}{eprint:GitHub}

```

GitLab Add GitLab as a eprint option

```

878 \new@eprint*{GitLab}{https://gitlab.com}
879 \DeclareFieldAlias{eprint:gitlab}{eprint:GitLab}

```

Bitbucket Add Bitbucket as a eprint option

```

880 \new@eprint*{Bitbucket}{https://bitbucket.org}
881 \DeclareFieldAlias{eprint:bitbucket}{eprint:Bitbucket}

```

Launchpad Add Launchpad as a eprint option

```

882 \new@eprint{Launchpad}{https://launchpad.net}
883 \DeclareFieldAlias{eprint:launchpad}{eprint:Launchpad}

```

SourceForge Add SourceForge as a eprint option

```

884 \new@eprint{SourceForge}{https://sourceforge.net/projects}
885 \DeclareFieldAlias{eprint:launchpad}{eprint:SourceForge}

```

HEPForge Add HEPForge as a eprint option

```

886 \DeclareFieldFormat{eprint:hepforge}{%
887   HEPForge\addcolon\space\bib@online{https://#1/hepforge.org}{#1}%
888 }
889 \DeclareFieldAlias{eprint:HEPForge}{eprint:hepforge}
890 %</package|bibliography>

```

<*package>

End check for bibliography option.

891 \fi

I Hyperlinks, Footnotes and References

Load the HYPERREF package [5] enable Unicode encoding and hide links.

```
892 \RequirePackage{hyperref}
893 \hypersetup{
894   pdfencoding=auto, psdextra,
895   hidelinks, linktoc=all, breaklinks=true,
896   pdfcreator={}, pdfproducer={}
897 }
```

Set the PDF meta data according to the paper information and ensure that unnecessary information is suppressed.

```
898 \pdfstringdefDisableCommands{\def\varepsilon{\textepsilon}}
899 \pdfstringdefDisableCommands{\def\to{\textrightarrow}}
900 \AtBeginDocument{
901   \pdfstringdefDisableCommands{\let\ensuremath@gobble}
902   \pdfstringdefDisableCommands{\let\mathsurround@gobble}
903   \pdfstringdefDisableCommands{\let\unskip@gobble}
904   \pdfstringdefDisableCommands{\let\thanks@gobble}
905   \pdfstringdefDisableCommands{\let\footnote@gobble}
906   \pdfstringdefDisableCommands{\let\\\@gobble}
907 }
908 \ifhep@revtex
909   \AtBeginShipout{\hypersetup{pdftitle={\@title}}}}
910 \else
911   \ifhep@beamer\else
912     \AtBeginDocument{\hypersetup{pdftitle={\@title}}}}
913   \fi
914 \fi
915 \ifhep@title
916   \AtBeginDocument{\hypersetup{pdfauthor=\AB@authlist}}
917 \else
918   \ifhep@beamer\else
919     \ifhep@pos\else\AtBeginDocument{\hypersetup{pdfauthor={\@author}}}\fi
920   \fi
921 \fi
```

I.1 Footnotes

Place a hyperlink from the footnote back to its referencing label using the FOOTNOTE-BACKREF package [75].

```

922 \def\BackrefFootnoteTag{}
923 \RequirePackage{footnotebackref}

```

`\footnote` Ensure that no spaces appear before the footmark or at the beginning of the footnote.

```

924 \let\@foot@note\footnote
925 \renewcommand{\footnote}[1]{\unskip\@foot@note{\ignorespaces#1}}

```

I.2 References

Begin of references conditional

```

926 \ifhep@references

```

`\cref` Improve reference using the CLEVEREF package [13].

```

927 \RequirePackage[noabbrev, nameinlink]{cleveref}
928 \newcommand{\creflastconjunction}{, and\nobreakspace}
929 \crefname{enumi}{point}{points}
930 \crefname{inlinelisti}{point}{points}

```

`\no@break@before` Define a macro able to prevent line breaks.

```

931 \newcommand\no@break@before{%
932   \relax\ifvmode\else%
933     \ifhmode%
934       \ifdim\lastskip > 0pt%
935         \relax\unskip\nobreakspace%
936       \fi%
937     \fi%
938   \fi%
939 }

```

`\ref` Adjust `\ref{<key>}` in order to prevent preceding line breaks.

```

940 \let\hep@ref\ref
941 \AtBeginDocument{\renewcommand\ref{\no@break@before\hep@ref}}

```

`\eqref` Adjust `\eqref{<key>}` in order to prevent preceding line breaks.

```

942 \renewcommand\eqref{\no@break@before\labelcref}

```

`\subref` Adjust `\subref{<key>}` in order to prevent preceding line breaks.

```

943 \let\hep@subref\subref
944 \renewcommand\subref{\no@break@before\hep@subref}
945 \renewcommand*\subcaption@ref[2]{\begingroup%
946   \caption@setoptions{sub}%
947   \subcaption@reffmt\p@subref{\hep@ref#1{sub@#2}}}%
948 \endgroup}

```

`\subcref` Provide the `\subcref` macro.

```
949 \newcommand{\subcref}[1]{\cref{sub@#1}}
```

`\eqcrefname` Define the `\eqcrefname` macro for named equation types.

```
950 \NewDocumentCommand{\eqcrefname}{mmo}{%
951   \crefname{#1}{#2}{\IfValueTF{#3}{#3}{#2s}}
952   \creflabelformat{#1}{(##2##1##3)}
953 }
```

`\labelcrefrange` Define the missing `\labelcrefrange{<key1>}{<key2>}` macro.

```
954 \DeclareRobustCommand{\labelcrefrange}[2]{%
955   \@crefrangenostar{labelcref}{#1}{#2}%
956 }
```

Adjust the title page

```
957 \ifhep@title
958   \labelcrefmultiformat{affiliation}{#2#1#3}{%
959     \textsuperscript,#2#1#3}{\textsuperscript,#2#1#3%
960   }{%
961     \textsuperscript,#2#1#3%
962   }
963   \labelcrefrangeformat{affiliation}{#3#1#4\textsuperscript{--}#5#2#6}
964 %   \thanksmarkseries{alph}
965 \fi
```

End of references conditional

```
966 \fi
```

I.3 Citations

`\cite` Adjust `\cite{<key>}` in order to prevent preceding line breaks.

```
967 \let\hep@cite\cite
968 \renewcommand\cite{\no@break@before\hep@cite}
```

Begin of bibliography if.

```
969 \ifnum\pdf@strcmp{\hep@bibliography}{false}=0\else
```

Define bibstrings for reference names.

```
970 \NewBibliographyString{refname}
971 \NewBibliographyString{refsnam}
972 \DefineBibliographyStrings{english}{%
973   refname = {reference},
974   refsnam = {references}
975 }
```

```

\ccite Define clever citation macros.
\Ccite
976 \DeclareCiteCommand{\ccite}{%
977   \ifnum\thecitetotal=1
978     \bibstring{refname}%
979   \else%
980     \bibstring{refsname}%
981   \fi%
982   \addnbspace\bibopenbracket%
983   \usebibmacro{cite:init}\usebibmacro{prenote}%
984 }{\usebibmacro{cite:index}\usebibmacro{cite:comp}}{}{%
985   \usebibmacro{cite:dump}\usebibmacro{postnote}%
986   \bibclosebracket%
987 }
988
989 \newrobustcmd*{\Ccite}{\bibsentence\ccite}

End of biblatex if.

990 \fi

```

J Acronyms

Acronyms are implemented with the GLOSSARIES-EXTRA package [76] which is an extension of the GLOSSARIES package [12] and must be loaded after the HYPERREF package in appendix I. Set the abbreviation style.

```

991 \ifhepglossaries
992 %</package>
993 %<*package|acronyms>
994 \RequirePackage[nostyles]{glossaries-extra}
995 \setabbreviationstyle{long-hyphen-short-hyphen}

```

The entry count feature is used.

```

996 \glsenableentrycount
997 \glssetcategoryattribute{abbreviation}{entrycount}{1}

```

Provide macros for older glossaries-extra installations.

```

998 \AtEndOfPackage{
999   \@ifpackageloaded{hyperref}{
1000     \providecommand{\glsxtrusefield}[2]{\@gls@entry@field{#1}{#2}}
1001     \providecommand{\glsxtrsetfieldifexists}[3]{\@glsdoifexists{#1}{#3}}
1002     \providecommand{\glsXtrSetField}[3]{%
1003       \glsxtrsetfieldifexists{#1}{#2}{%
1004         \csgdef{glo@glsetoklabel{#1}@#2}{#3}%
1005       }%
1006   }

```


Hyperlinks from the abbreviation to their definition in the text are set.

```

1007 \glsssetcategoryattribute{abbreviation}{nohyperfirst}{true}
1008 \renewcommand*{\glsdonohyperlink}[2]{\%
1009 \glsxtrprotectlinks\edef\fieldvalue{%
1010 \glsxtrusefield{\glslabel}{hastarget}}%
1011 }%
1012 \ifdefstring\fieldvalue{true}{#2}{\%
1013 \glsXtrSetField{\glslabel}{hastarget}{true}%
1014 \glsdohypertarget{#1}{#2}%
1015 }%
1016 }}
1017 }\providecommand{\pdfstringdefDisableCommands}[1]{}
1018 }

```

`\begin@sentence` Mark the beginning of a paragraph as if it would follow a full stop using the EVERYHOOK package [77].

```

1019 \RequirePackage[excludeor]{everyhook}
1020 \newcommand{\begin@sentence}{1001}
1021 \PushPostHook{par}{\spacefactor=\begin@sentence}

```

`\frenchspacing` Adjust the `\frenchspacing` macro to be compatibel with this idea.

```

1022 \def\frenchspacing{%
1023 \sfcode'\.\begin@sentence \sfcode'\?\begin@sentence
1024 \sfcode'\!\begin@sentence \sfcode'\:\begin@sentence
1025 \sfcode'\;\@m \sfcode'\,\@m
1026 }

```

`\if@begin@of@sentence` Provide a macro checking for the beginning of a sentence by examining the length of the preceeding space.

```

1027 \newcommand{\if@begin@of@sentence}[2]{\leavevmode\protecting{%
1028 \ifboolexpr{ test {\ifnumcomp{\spacefactor}{=}{3000}} or%
1029 test {\ifnumcomp{\spacefactor}{=}{2000}} or%
1030 test {\ifnumcomp{\spacefactor}{=}{\begin@sentence}}}%
1031 }{#1}{#2}%
1032 }}

```

`\acronym` The `\acronym{*}[typeset abbreviation]}{abbreviation}{*}[definition]}[plural definition]` macro is defined.

- #1 star for omitting the ‘s’ in the short plural
- #2 optional typeset abbreviation
- #3 mandatory abbreviation
- #4 star for restoring the \TeX default for space after text macros
- #5 mandatory long form
- #6 optional plural long form

```

1033 %<acronyms>\usepackage{xspace}
1034 \NewDocumentCommand{\acronym}{\somsmo}{
1035   \newabbreviation[
1036     type=\acronymtype,
1037     sort=#3,
1038     \glsshortpluralkey=\IfBooleanTF{#1}{#3}{\IfNoValueTF{#2}{#3s}{#2s}},
1039     longplural=\IfNoValueTF{#6}{#5s}{#6}
1040   ]{#3}{\IfNoValueTF{#2}{#3}{#2}}{#5}

```

Provide the singular acronym macro.

```

1041 \expandafter\newcommand\csname#3\endcsname[1][\{
1042   \if@begin@of@sentence{
1043     \ifglused{#3}{\cgl{s}{#3}[##1]}\{cgl{s}{#3}[##1]}%
1044   }\{cgl{s}{#3}[##1]}%
1045   \ifnum\gl{sentrycurrcount}{#3}>1\relax
1046     \IfBooleanTF{#4}{\{\@xspace}%
1047   \else\@xspace\fi
1048 }

```

Expand the singular acronym macro in PDF labels.

```

1049 \pdfstringdefDisableCommands{\expandafter\def\csname#3\endcsname{
1050   \IfNoValueTF{#2}{#3}{#2} }%
1051 }

```

Provide the singular acronym macro in math mode.

```

1052 \expandafter\mathdef\csname#3\endcsname{
1053   \text{\gl{xtrshort}{#3}}\@gls@increment@currcount{#3}%
1054 }

```

Provide the plural acronym macro.

```

1055 \expandafter\newcommand\csname#3s\endcsname[1][\{
1056   \if@begin@of@sentence{cgl{spl}{#3}[##1]}\{cgl{spl}{#3}[##1]}%
1057   \IfBooleanTF{#4}{\{\@xspace}%
1058 }

```

Expand the plural acronym macro in PDF labels.

```

1059 \pdfstringdefDisableCommands{\expandafter\def\csname#3s\endcsname{
1060   \IfBooleanTF{#1}{#3}{\IfNoValueTF{#2}{#3s}{#2s}} }%
1061 }

```

Provide the plural acronym macro in math mode.

```

1062 \expandafter\mathdef\csname#3s\endcsname{
1063   \text{\gl{xtrshortpl}{#3}}\@gls@increment@currcount{#3}%
1064 }
1065 }

```

`\shortacronym` The `\shortacronym` never expands into the long form.

```
1066 \NewDocumentCommand{\shortacronym}{somsmo}{
```

Provide the singular acronym macro.

```
1067   \expandafter\newcommand\csname#3\endcsname[1][]{%
1068     \IfNoValueTF{#2}{#3}{#2}\IfBooleanTF{#4}{}{\@xspace}##1%
1069   }
```

Expand the singular acronym macro in PDF labels.

```
1070   \pdfstringdefDisableCommands{\expandafter\def\csname#3\endcsname{%
1071     \IfNoValueTF{#2}{#3}{#2} }%
1072   }
```

Provide the singular acronym macro in math mode.

```
1073   \expandafter\mathdef\csname#3\endcsname{%
1074     \text{\IfNoValueTF{#2}{#3}{#2}}%
1075   }
```

Provide the plural acronym macro.

```
1076   \expandafter\newcommand\csname#3s\endcsname[1][]{%
1077     \IfBooleanTF{#1}{#3}{\IfNoValueTF{#2}{#3s}{#2s}}%
1078     \IfBooleanTF{#4}{}{\@xspace}##1%
1079   }
```

Expand the plural acronym macro in PDF labels.

```
1080   \pdfstringdefDisableCommands{\expandafter\def\csname#3s\endcsname{%
1081     \IfBooleanTF{#1}{#3}{\IfNoValueTF{#2}{#3s}{#2s} }%
1082   }
```

Provide the plural acronym macro in math mode.

```
1083   \expandafter\mathdef\csname#3s\endcsname{%
1084     \text{\IfBooleanTF{#1}{#3}{\IfNoValueTF{#2}{#3s}{#2s}}}%
1085   }%
1086 }
```

`\longacronym` The `\longacronym` never shows the abbreviated form.

```
1087 \NewDocumentCommand{\longacronym}{somsmo}{
```

Provide the singular acronym macro.

```
1088 acronyms
1089   \expandafter\newcommand\csname#3\endcsname[1][]{%
1090     \if@begin@of@sentence{\MakeUppercase#5}{#5}%
1091     \IfBooleanTF{#4}{}{\@xspace}##1%
1092   }
```

Expand the singular acronym macro in PDF labels.

```
1093 \pdfstringdefDisableCommands{\expandafter\def\csname#3\endcsname{#5 }}
```

Provide the plural acronym macro.

```
1094 \expandafter\newcommand\csname#3s\endcsname[1][\%
1095 \if@begin@of@sentence{\%
1096 \IfNoValueTF{#6}{\MakeUppercase#5s}{\MakeUppercase#6}%
1097 }{\%
1098 \IfNoValueTF{#6}{#5s}{#6}}\IfBooleanTF{#4}{\@xspace}##1%
1099 }
```

Expand the plural acronym macro in PDF labels.

```
1100 \pdfstringdefDisableCommands{\expandafter\def\csname#3s\endcsname{\%
1101 \IfNoValueTF{#6}{#5s}{#6} }%
1102 }
1103 }
```

Silence warning if no acronyms are defined.

```
1104 \renewcommand*{\@gls@write@entrycounts}{\%
1105 \immediate\write\@auxout{\%
1106 \string\providecommand*\string\@gls@entry@count}[2]{\%
1107 }%
1108 \count@=0\relax
1109 \forallglsentries{\@glsentry}{\%
1110 \glshasattribute{\@glsentry}{entrycount}{\%
1111 \ifglused{\@glsentry}{\%
1112 \immediate\write\@auxout{\%
1113 \string\@gls@entry@count{\@glsentry}{\%
1114 \glsentrycurrcount{\@glsentry}%
1115 }
1116 }%
1117 }{\advance\count@ by \@ne
1118 }{\}%
1119 }%
1120 }
```

`\resetacronym` Add two macros for acronym management.
`\dummyacronym`

```
1121 \newcommand{\resetacronym}[1]{\protect\glsreset{#1}}
1122 \newcommand{\dummyacronym}[1]{\protect\glsunset{#1}}
```

`abstract` Adjust the abstract environment to reset all acronym counters.

```
1123 \@ifundefined{endabstract}{\}%
1124 \let\end@hep@abstract\endabstract%
1125 \renewcommand\endabstract{\glsresetall\end@hep@abstract}%
1126 }
```

`\tableofcontents` Adjust the `\tableofcontents` macro to never show the long form of acronyms.

```

\listoffigures
\listoftables 1127 \let\hep@table@of@contents\tableofcontents
1128 \renewcommand\tableofcontents{%
1129   \glsunsetall\hep@table@of@contents\glsresetall%
1130 }
1131 \let\hep@list@of@figures\listoffigures
1132 \renewcommand\listoffigures{%
1133   \glsunsetall\hep@list@of@figures\glsresetall%
1134 }
1135 \let\hep@list@of@tables\listoftables
1136 \renewcommand\listoftables{%
1137   \glsunsetall\hep@list@of@tables\glsresetall%
1138 }

```

`\acronyms` Add a possibility to have different groups of acronyms.

```

1139 \NewDocumentCommand{\acronyms}{om}{%
1140   \IfNoValueTF{#1}{
1141     \newglossary{#2}{#2.in}{#2.out}{#2}%
1142     \renewcommand{\acronymtype}{#2}%
1143   }{
1144     \newglossary{#1}{#1.in}{#1.out}{#2}%
1145     \renewcommand{\acronymtype}{#1}%
1146   }
1147 }

```

End of glossaries if.

```

1148 %</package|acronyms>
1149 %<*package>
1150 \fi

```

K Biblatex datamodel file

`collaboration` Define the dbx file containing the hep-paper datamodel.

```

pmid
pmcid 1151 \DeclareDatamodelFields[type=field, datatype=literal]{
pmc 1152   collaboration, pmid, pmcid, pmc,
1153 }
reportnumber 1154 \DeclareDatamodelFields[type=field, format=xsv, datatype=literal]{
protocollessurl 1155   reportnumber,
1156 }
1157 \DeclareDatamodelFields[type=field, datatype=uri]{protocollessurl}
1158 \DeclareDatamodelEntryfields{
1159   collaboration, pmid, pmcid, pmc, reportnumber, protocollessurl,
1160 }

```

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Change History

v1.0		v1.3
General: Initial version of the style file.	1	
v1.1		General: Inclusion of JHEP and
General: Transition to documented		JCAP package options. Fix of
L ^A T _E X source file.	1	incompatibility with recent
v1.2		subcaption package version. Move
General: Introduction of package		of biblatex datamodel into its own
options.	1	file 1

v1.4		options.	1
	General: If possible the compatibility options are selected automatically.		
	Inclusion of PubMed IDs in bibliography.		1
v1.5			
	General: Reduce the numer of math alphabets used in sans serif mode.		
	Add more title options such as a subtitle. Use standard class		
		v1.6	
		General: Implementation of the twocolumn mode.	1
		v1.7	
		General: Introduction of dedicated style file for the title, acronyms and bibliography macros.	
		Extension of the title macros. . . .	1