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 \texttt{article} class without optional arguments only the \texttt{hep-paper} package [1].

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

The most notable changes after loading the \texttt{hep-paper} package is the change of some \LaTeX{} defaults. The paper and font sizes are set to A4 and 11 pt, respectively. Additionally, the paper geometry is adjusted using the \texttt{geometry} package [2]. Furthermore, the font is changed to latin modern (LM) using the \texttt{cfr-lm} package [3] with \texttt{microtype} [4] optimizations. Finally, portable document format (PDF) hyperlinks are implemented with the \texttt{hyperref} package [5]. If only subset of the functionality is needed one of the smaller style files \texttt{hep-title}, \texttt{hep-acronyms}, and \texttt{hep-bibliography} containing only the macros relevant to sections 2.1, 2.2.2, and 2.5, respectively.

1.1 Options

\begin{itemize}
\item \texttt{paper} The \texttt{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.
\item \texttt{font} The \texttt{font=(size)} option loads the specified font size. The possible (sizes) are: 8pt, 9pt, 10pt, 11pt, 12pt, 14pt, 17pt, 20pt. The default is 11 pt.
\item \texttt{lang} The \texttt{lang=(name)} option switches the document language to one of the values provided by the \texttt{babel} package [6]. The default is \texttt{british}.
\item \texttt{sansserif} The \texttt{sansserif} option switches the document including math to sans serif font shape.
\item \texttt{oldstyle} The \texttt{oldstyle} option activates the use of oldstyle text- (123) in favour of lining- (123) figures in text mode.
\item \texttt{parskip} The \texttt{parskip} option changes how paragraphs are separated from each other using the \texttt{parskip} package [7]. The \LaTeX{} default is separation via indentation the \texttt{parskip} option switches to separation via vertical space.\footnote{Although the \texttt{parskip} option is used for this document, it is recommended only for very few document types such as technical manuals or answers to referees.}
\item \texttt{symbols} The \texttt{symbols=(family)} set the family of the symbol fonts. \texttt{symbols=ams} loads the two \texttt{AMS} fonts [8] and the \texttt{bm} bold fonts. The default \texttt{symbols=true} replaces additionally the blackboard font with the \texttt{DSFONT} [9]. \texttt{symbols=minion} switches the symbol fonts to the Adobe MinionPro companion font from the \texttt{MnSymbol} package [10]. \texttt{symbols=false} deactivates loading any additional symbol fonts.
\end{itemize}
1.1.1 Deactivation

The \texttt{hep-paper} package loads few bigger packages which have a large impact on the document. The deactivation options can prevent such and other adjustments.

\texttt{defaults} The \texttt{defaults} option prevents the adjustment of the page geometry and the font size set by the document class.

\texttt{title} The \texttt{title=false} option deactivates the title page adjustments.

\texttt{bibliography} The \texttt{bibliography=}\{\texttt{key}\} option prevents the automatic loading of the \texttt{biblatex} package [11] if \{\texttt{key}\}==\texttt{false}. Otherwise the \{\texttt{key}\} is passed as style string to the \texttt{biblatex} package.

\texttt{glossaries} The \texttt{glossaries=false} option deactivates acronyms and the use of the \texttt{glossaries} package [12].

\texttt{references} The \texttt{references=false} option prevents the \texttt{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 \texttt{hep-paper} is able to detect the presence of such a class or package, \textit{i.e.} if it is loaded before the \texttt{hep-paper} package, the compatibility mode is activated automatically.

\texttt{beamer} The \texttt{beamer} option activates the \texttt{beamer} [14] compatibility mode.

\texttt{jhep} The \texttt{jhep} option activates the JHEP [15] compatibility mode.

\texttt{jcap} The \texttt{jcap} option activates the JCAP [16] compatibility mode.

\texttt{revtex} The \texttt{revtex} option activates the REVTEX [17] compatibility mode.

\texttt{pos} The \texttt{pos} option activates the PoS compatibility mode.

\texttt{springer} The \texttt{springer} option activates the compatibility mode the \texttt{svjour} class [18].

1.1.3 Reactivation

The \texttt{hep-paper} package deactivates unrecommended macros, which can be reactivated manually.

\texttt{manualplacement} The \texttt{manualplacement} option reactivates manual float placement.

\texttt{eqnarray} The \texttt{eqnarray} option reactivates the depreciated \texttt{eqnarray} environment.

2 Macros and environments

\texttt{twocolumn} If the global \texttt{twocolumn} option is present the page geometry is changed to cover

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

\section*{2.1 Title page}

\texttt{series} The \texttt{\series{⟨series⟩}} macro is defined using the \texttt{titling} package [19].

\texttt{title} The PDF meta information is set according to the \texttt{\title{⟨text⟩}} and \texttt{\author{⟨text⟩}} information.

\texttt{subtitle} The \texttt{\subtitle{⟨subtitle⟩}} macro is defined.

\texttt{editor} In order to facilitate multiple authors with different affiliations the \texttt{authblk} package [20] is loaded. The following lines add \texttt{e.g.} two authors with different affiliations

\begin{verbatim}
\author[1]{Author one \email{email one}}
\affiliation[1]{Affiliation one}
\email\author[2]{Author two \email{email two}}
\affiliation[1,2]{Affiliation two}
\end{verbatim}

\texttt{preprint} The \texttt{\preprint{⟨numer⟩}} macro places a pre-print number in the upper right corner of the title page.

\texttt{abstract} The \texttt{abstract} environment is adjusted to not start with an indentation.

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

\texttt{authorfont}

\texttt{affiliationfont}

\texttt{preprintfont}

\texttt{enquote MakeOuterQuote}

\texttt{eg} The \texttt{\eg} defines macros such as \texttt{\eg}, \texttt{\ie}, \texttt{\cf}, and \texttt{\vs} which are typeset as \texttt{\eg}, \texttt{i.e.}, \texttt{cf.}, and \texttt{vs}.

\texttt{vs} The \texttt{\no{⟨number⟩}} macro is typeset as \texttt{No 123}.

\texttt{software} The \texttt{\software{⟨version⟩}{⟨name⟩}} macro is typeset as HEP-PAPER v1.7.

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

\texttt{inlinelist enumdescript} The \texttt{inlinelist} and \texttt{enumdescript} environments are defined using the \texttt{enumitem} package [24].

\texttt{enumerate}
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

A bold versions \textsc{Small Caps} and a sans serif version of \textsc{Small Caps} based on the computer modern (CM) font [25] is provided, the latter using the \textsc{sansmath-fonts} package.

The \texttt{\underline} macro is redefined to allow line-breaks using the \texttt{ulem} package [27].

The \texttt{\overline} macro is extended to also overline text outside of math environments.

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

\subsection*{2.2.1 References and footnotes}

\texttt{\cref} References are extended with the \texttt{cleveref} package [13], which allows to \textit{e.g.} just type \texttt{\cref{(key)}} in order to write ‘figure 1’. Furthermore, the \texttt{cleveref} package allows to reference multiple objects within one \texttt{\cref{(key1,key2)}}.

\texttt{\cite} Citations are adjusted to not start on a new line in order to avoid the repeated use of -\texttt{\cite{(key)}}.

\texttt{\ref} References are also adjusted to not start on a new line.

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

\subsection*{2.2.2 Acronyms}

The \texttt{\acronym{(*)}{(typeset abbreviation)\{(abbreviation\)}}\{\*(definition)\}{(plural definition)\}} macros generate the singular \texttt{(abbreviation)} and plural \texttt{(abbreviation)s} macros. The first star prevents the addition of an ‘s’ to the abbreviation plural. The 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 \texttt{\shortacronym} and \texttt{\longacronym} macros are drop-in replacements of the \texttt{\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

\texttt{\resetacronym}
\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 \texttt{AMS-L\TeX} amssymb [29] and amsfonts [8] packages. Bold math, via \mathbf is improved by the \texttt{bm} package [30], \textit{i.e.} (\textit{AbÇôAbΓδ}). Macros switching to \texttt{bfsseries} such as \texttt{section}{(text)} are ensured to also typeset math in bold. The \texttt{text}{(text)} macro makes it possible to write text within math mode, \textit{i.e.} (AbΓδAbΓδ). The \texttt{mathcal} font \textit{i.e.} (\textit{ABCD}) is accompanied by the \texttt{mathscr} font \textit{i.e.} (\textit{Çhe}). The \texttt{mathbb} font is improved by the \texttt{doublestroke} package [9] and adjusted depending on the \texttt{sansserif} option \textit{i.e.} (Åh1). Finally, the \texttt{mathfrak} font is also available \textit{i.e.} (AaBb12). Details about the font handling in \TeX can be found in reference [31].

\texttt{nicefrac} The \texttt{frac}{(number)}{(number)} macro is accompanied by \texttt{nicefrac}{number}{number}, \texttt{textfrac}{number}{number}, and \texttt{flatfrac}{number}{number} leading to $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{5}$. Diagonal matrix \texttt{diag} and signum \texttt{sgn} operators are defined.

\texttt{mathdef} The imaginary unit \texttt{i} and the differential \texttt{d} are defined using this functionality. For longer paper it can be useful to re-number the equation in accordance with the section numbering \texttt{numberwithin}{equation}{section}. In order to further reduce the size the of equation counter it can be useful to wrap \texttt{align} environments with multiple rows in a \texttt{subequations} environment. Both macros are provided by the \texttt{amsmath} package.

\texttt{eqnarray} The depreciated \texttt{eqnarray} environment is undefined as long this behaviour is not prevented by the \texttt{eqnarray} package option. The \texttt{split}, \texttt{multiline}, \texttt{align}, \texttt{multlined}, \texttt{aligned}, \texttt{alignedat}, and \texttt{cases} environments of the \texttt{amsmath} and \texttt{mathtools} packages should be used instead.

\texttt{equation} Use the \texttt{equation} environment for short equations.

\begin{equation}
\left. \text{left} = \text{right} \right\rarrow. \tag{1}
\end{equation}

\texttt{multiline} Use the \texttt{multiline} environment for longer equations.
\begin{multline} \text{left} = \text{right 1} \\
+ \text{right 2} . \end{multline} \tag{2}

split Use the \texttt{split} sub environment for equations in which multiple equal signs should be aligned.

\begin{equation} \begin{split} \text{left} &= \text{right 1} \\
&= \text{right 2} . \end{split} \end{equation} \tag{3}

align Use the \texttt{align} environment for the vertical alignment and horizontal distribution of multiple equations.

\begin{equation} \begin{align} \text{left} &= \text{right} \\
\text{left} &= \text{right} , \text{left} &= \text{right} . \end{align} \tag{4a}
\text{left} &= \text{right} , \text{left} &= \text{right} . \tag{4b}
\end{equation}

aligned Use the \texttt{aligned} environment within a \texttt{equation} environment if the aligned equations should be labeled with a single equation number.

\begin{equation} \begin{alignedat}{2} \text{left} &= \text{long right} & \text{left} &= \text{long right} , \text{left} &= \text{long right} . \end{alignedat} \tag{5}
\end{equation}

multlined Use the \texttt{multlined} environment if either \texttt{split} or \texttt{align} contain very long lines.

\begin{equation} \begin{align} \text{left} &= \text{right 1} \quad & \text{left} &= \text{long right} \quad & + \text{right 3} . \end{align} \tag{6a}
\text{le. 2} &= \text{ri. 2} , \text{le. 3} &= \text{ri. 3} . \tag{6b}
\end{equation}

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

\begin{alignat}{2} \text{left} &= \text{long right} & \text{left} &= \text{long right} . \end{alignat} \tag{6a}

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

\subsection{Physics}

\texttt{\unit} The correct spacing for units, \textit{cf.} equation (7), is provided by the macro \texttt{\unit\{value\}} \texttt{\{unit\}} from the \texttt{units} package [32] which can also be used in text mode. The macro
\texttt{\textbackslash inv\{}(power)\texttt{\textbackslash\{}text\texttt{\textbackslash\}} allows to avoid math mode also for inverse units such as 5 fb\(^{-1}\) typeset via \texttt{\textbackslash unit\{5\texttt{\textbackslash\}}inv\{fb\}\texttt{\}}. 

Greek letters are adjusted to always be italic and upright in math and text mode, respectively, using the \texttt{fixmath} \cite{fixmath} and \texttt{alphabeta} \cite{alphabeta} packages. This allows differentiations like 

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

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

\texttt{\textbackslash ev} The \texttt{physics} package \cite{physics} provides additional macros such as 

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

\texttt{\textbackslash pdv} \texttt{\textbackslash comm} \texttt{\textbackslash order} \texttt{\textbackslash cancel} \texttt{\textbackslash slashed} \texttt{\textbackslash overleftright} A better looking over left right arrow is defined \textit{i.e.} $\partial$.

\subsection{2.4 Floats}

\texttt{\textbackslash figure} \texttt{\textbackslash table} Automatic float placement is adjusted to place a single float at the top of pages and to reduce the number of float pages, using the \LaTeX macros. 

\texttt{\setcounter\{}\texttt{\textbackslash bottomnumber}\{0\} \quad \text{no floats at the bottom of a page (default 1)} \texttt{\}} \texttt{\textbackslash setcounter\{}\texttt{\textbackslash topnumber}\{1\} \quad \text{a single float at the top of a page (default 2)} \texttt{\}} \texttt{\textbackslash setcounter\{}\texttt{\textbackslash dbltopnumber}\{1\} \quad \text{same for full widths floats in two-column mode} \texttt{\}} 

\texttt{\textbackslash renewcommand\{\textfraction\}\{.1\} \quad \text{large floats are allowed (default 0.2)} \texttt{\}} \texttt{\textbackslash renewcommand\{\textfraction\}\{.9\} \quad \texttt{\}} \texttt{\textbackslash renewcommand\{\textfraction\}\{.7\} \quad \texttt{\}} 

\texttt{\textbackslash renewcommand\{\textfraction\}\{.9\} \quad \texttt{\}} \texttt{\textbackslash renewcommand\{\textfraction\}\{.7\} \quad \texttt{\}} 

\texttt{\textbackslash renewcommand\{\textfraction\}\{.8\} \quad \texttt{\}} \texttt{\textbackslash renewcommand\{\textfraction\}\{.5\} \quad \texttt{\}} 

Additionaly, manual float placement is deactivated but can be reactivated using the \texttt{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 \textit{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 \texttt{\textbackslash raggedright}.

\texttt{\textbackslash panels} \texttt{\textbackslash panel} The \texttt{panels} environment makes use of the \texttt{subcaption} package \cite{subcaption}. It provides 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 \texttt{\textbackslash linewidth}. Within the \texttt{\begin{panels}{\langle vertical alignment\rangle}{\langle width\rangle}} environment the \texttt{\textbackslash panel} macro
\begin{panels}{2}
\begin{tabular}{cccc}
\texttt{one} & \texttt{two} \\
\texttt{a} & \texttt{b} & \texttt{c} & \texttt{d} \\
\texttt{b} & \texttt{c} & \texttt{d} \\
\end{tabular}
\end{panels}

(a) Code for this panel environment. (b) The \texttt{booktabs} and \texttt{multirow} features.

Table 1: Example use of the \texttt{panels} environment in Panel (a) and the features from the \texttt{booktabs} and \texttt{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 \texttt{panels} environment the \texttt{\panel{⟨width⟩}} macro takes the width of the next sub-float as mandatory argument. The example code is presented in table 1a.

\texttt{tabular} The \texttt{booktabs} [39] and \texttt{multirow} [40] packages are loaded enabling publication quality tabulars such as in table 1b.

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

\subsection{2.5 Bibliography}

\texttt{bibliography} The \texttt{biblatex} package [41] is loaded for bibliography management. The user has to add the line \texttt{\bibliography{⟨my.bib⟩}} to the preamble of the document and \texttt{\printbibliography} at the end of the document. The bibliography is generated by \texttt{Biber} [42]. \texttt{biblatex} is extended to be able to cope with the \texttt{collaboration} and \texttt{reportNumber} fields provided by \texttt{inspirehep.net} and a bug in the volume number is fixed. Additionally, the PubMed IDs are recognized and \texttt{ctan.org}, \texttt{github.com}, \texttt{gitlab.com}, \texttt{bitbucket.org}, \texttt{launchpad.net}, \texttt{sourceforge.net}, and \texttt{hepforge.org} are valid \texttt{eprinttype}s. Errata can be included using the \texttt{related} feature.

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

\section{Conclusion}

The \texttt{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 bbl 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, TeX 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/cm\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 cmmi10 \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 amsymb (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]. 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 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 \texttt{\textbackslash 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 \texttt{pdftexcmds} [49] and \texttt{kvoptions} [50] packages and define a \texttt{hep} namespace.

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

**paper** Define a \texttt{paper=(size)} option. Make A4 paper the default.

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

**font** Define a \texttt{figures=(size)} option. Make 11pt the default font size.

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

**lang** Define the \texttt{lang} option, which takes the values provided by the \texttt{babel} package [6]. Make \texttt{british} the default language.

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

**sansserif** Define the option pair \texttt{serif} and \texttt{sansserif} controlling the font shape of the whole document.

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

**lining** Define the \texttt{lining} option deactivating the use of text figures in text mode.

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

**parskip** Define the option pair \texttt{parindent} and \texttt{parskip} controlling the separation of paragraphs.

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

**symbols** Provide the \texttt{symbols} option allowing to switch the symbol font.

```latex
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 off 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@getclass{\expandafter\hep@get@class\@filelist\relax}
34 \hep@getclass
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 %}
3\}

**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.

```latex
\@ifclassloaded{beamer}{\setkeys{hep}{beamers}}{}
\ifhep@beamer
\setkeys{hep}{defaults, title=false, references=false, sansserif}
\@ifpackageloaded{beamerbasefont}{\usefonttheme{professionalfonts}}{}
\setbeamertemplate{navigation symbols}{}
\fi
```

Set the revtex compatibility options.

```latex
\@ifclassloaded{revtex4}{\setkeys{hep}{revtex}}{}
\@ifclassloaded{revtex4-1}{\setkeys{hep}{revtex}}{}
\@ifclassloaded{revtex4-2}{\setkeys{hep}{revtex}}{}
\ifhep@revtex
\setkeys{hep}{defaults, title=false, bibliography=false, lang=american}
\fi
```

Define the SISSA conditional.

```latex
\@ifpackageloaded{jheppub}{\setkeys{hep}{jhep}}{}
\@ifpackageloaded{jcappub}{\setkeys{hep}{jcap}}{}
\newif\ifhep@sissa
\ifhep@jhep\hep@sissatrue
\else
\ifhep@jcap\hep@sissatrue
\else\hep@sissafalse
\fi
\fi
```

Set the SISSA compatibility options.

```latex
\ifhep@sissa
\setkeys{hep}{title=false, bibliography=false}
\PassOptionsToPackage{
  colorlinks=true, linktocpage=true, pdfproducer=medialab, pdfa=true,
  urlcolor=blue, anchorcolor=blue, citecolor=blue, filecolor=blue,
  linkcolor=blue, menucolor=blue, pagecolor=blue}
\hyperref{}
\PassOptionsToPackage{reset}{geometry}
\AtBeginDocument{\renewcommand{\foreignabbrfont}{}}
\fi
```

Set the JHEP compatibility options.

```latex
\ifhep@jhep
\voffset 0in
\hoffset 0in
\fi
```
C Text

Set the whole text to sans serif if requested.

\ifhep@serif else
\renewcommand{\familydefault}{\sfdefault}
\fi

\ifluatexorluatex Load the ifluatex [51] and ifxetex [52] packages. Define the \ifluatexorluatex conditional checking if the package is executed by \LaTeX or \XeLaTeX.

94 \RequirePackage{ifluatex}
95 \RequirePackage{ifxetex}
96 \newif{\ifxetexorluatex}
97 \ifxetex\xetexorluatetrue
98 else
99 \ifluatex\xetexorluatetrue
100 else\xetexorluatexfalse
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{nfssext-cfr}
113 \RequirePackage{lmodern}
114 \else
115 \ifhep@lining
116 \RequirePackage{rm={lining},sf={lining},tt={lining}}\{cfr-lm\}
117 \else
118 \RequirePackage{cfr-lm}
119 \fi
120 \fi
121 \fi
122 \RequirePackage{etoolbox}
Define bold and sans serif small caps font shapes using the \texttt{fontspec} package \cite{cite}. The font abbreviations are

\begin{itemize}
  \item \texttt{lmr} LM regular font
  \item \texttt{lmss} LM sans serif font
  \item \texttt{cmss} CM sans serif font
  \item \texttt{xcmss} Extended CM sans serif font (from the \texttt{sansmathfonts} package \cite{cite2})
  \item \texttt{bx} Bold extended series
  \item \texttt{b} Bold series
  \item \texttt{m} Medium weight and width series
  \item \texttt{c} Medium weight, condensed width series
  \item \texttt{sc} Caps and small caps font shape
\end{itemize}
Load the \texttt{inputenc} package [60].

\begin{verbatim}
\ifxetexorluatex\else
\RequirePackage[utf8]{inputenc}
\fi
\end{verbatim}

Load the \texttt{babel} package [6] for hyphenation and the recommended \texttt{csquotes} package [21].

\begin{verbatim}
\RequirePackage[\hep@lang]{babel}
\RequirePackage[autostyle]{csquotes}
\end{verbatim}

\underline{Load the \texttt{ulem} package [27] for hyphenable underlined text.}

\begin{verbatim}
\RequirePackage[normalem]{ulem}
\let\underline\uline
\end{verbatim}

\section*{C.1 Font size}

Undefine previously defined font sizes and load the \LaTeX\ font size file corresponding to the font size option.

\begin{verbatim}
\ifhep@defaults\else
\def\hep@remove@pt#1pt{#1}
\edef\hep@pt@size{\expandafter\hep@remove@pt\hep@font}
\let\small\relax
\let\footnotesize\relax
\let\scriptsize\relax
\let\tiny\relax
\let\large\relax
\let\Large\relax
\let\LARGE\relax
\let\huge\relax
\let\Huge\relax
\input{size\hep@pt@size.clo}
\fi
\end{verbatim}

\section*{C.2 Text macros}

Load the \texttt{foreign} package [22] in order to highlight abbreviations and vocabularies from foreign languages. Add the missing \texttt{\vs} command.
The `FOREIGN` package relies on the `xspace` package [61]. Ensure that `xspace` is compatible with the `enquote` macro from the `csquote` package.

\no Define the macro `\no{⟨number⟩}` for the use of `№` with appropriate spacing.

\software Define a macro for software with optional version information `\software{⟨version⟩}{⟨name⟩}`, using the `relsize` package [62].

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

\prefix Define the `\prefix{⟨prefix⟩}{⟨word⟩}` macro ensuring the correct linebreak in (prefix-)word.
C.3 Lists

Load the `enumitem` package [24].

\texttt{\usepackage[inline]{enumitem}}

\textbf{inlinelist} Define an inline list environment.

\texttt{\newlist{inlinelist}{enumerate*}{1}}
\texttt{\setlist*[inlinelist,1]{%
  label=\roman*), itemjoin=\ empty\ }, itemjoin*=\ empty, and\ }, after=.\}}

\textbf{enumdescript} Define an enumdescript list environment.

\texttt{\newlist{enum@descript}{enumerate}{2}}
\texttt{\setlist{enum@descript}{label=\arabic*.}}
\texttt{\NewDocumentEnvironment{enumdescript}{1}{\begin{enum@descript}[#1]\[
\let\hep@item\item
\renewcommand\item{\ifx&##1&\hep@item\else\hep@item[#1]\fi\textbf{\hep@comma@list:n{#2}}\ifx##2\empty\else~\fi@ifnextchar\par\@gobble\relax\}
\end{enum@descript}}}{}

\textbf{commalist} Define a commalist environment.

\texttt{\ExplSyntaxOn}\texttt{\NewDocumentEnvironment{commalist}{O\empty+}{\hep@comma@list:n{#2}}{#1}}\texttt{\ExplSyntaxOff}

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

\begin{verbatim}
\useparskip \useparindent
\end{verbatim}

\begin{verbatim}
\ifhep@parindent \else
  \RequirePackage{parskip}
  \newcommand{\useparindent}{\setlength{\parindent}{0pt} \setlength{\parskip}{0pt} \setlength{\parindent}{15pt} \if@twocolumn \setlength{\parindent}{1em} \else \setlength{\parindent}{1.5em} \fi}
\fi
\end{verbatim}

\section*{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.

\begin{verbatim}
\allowdisplaybreaks\[1\] \thickmuskip=5mu plus 3mu minus 1mu \medmuskip=4mu plus 2mu minus 3mu
\end{verbatim}

\begin{verbatim}
\DeclareMathOperator{\diag}{diag} \DeclareMathOperator{\sgn}{sgn}
\end{verbatim}

\begin{verbatim}
\mathdef{\name}{\arguments}{\macro} \text{ macro which (re-)defines macros in math mode only. This macro is implemented using the `xparse` package \[63\].}
\end{verbatim}
\i Provide an upright imaginary unit in math mode.
\AtBeginDocument{\mathdef{\i}{\operatorname{i}}}  

\overline Redefine \overline to be a text macro using the \texttt{ulem} package [27]. Extend it as a math macro with the original definition from the \texttt{amsmath} package [29].
\def\overline#1{{\renewcommand{\ULdepth}{-1.9ex}{\uline{#1}}}}
\DeclareRobustCommand{\over@line}{\@@overline{#1}}
\mathdef{\overline}{\over@line}  

\left \right Load the \texttt{mleftright} package [64] and adjust the spacing around \left and \right.
\ RequirePackage{mleftright} \mleftright

\eqnarray Undefine the \texttt{eqnarray} environment if not prevented by package option.
\ifhep@eqnarray\else
\let\eqnarray\@undefined
\let\endeqnarray\@undefined
\fi  

E.1 Math fonts
Define conditionals based on the \texttt{symbols} package option.
\newif\ifhep@symbols
\ifnum\pdf@strcmp{\hep@symbols}{false}=0\else\hep@symbolstrue\fi
\newif\ifhep@ams
\ifnum\pdf@strcmp{\hep@symbols}{ams}=0 \hep@amstrue\fi
\newif\ifhep@minion
\ifnum\pdf@strcmp{\hep@symbols}{minion}=0 \hep@miniontrue\fi
Load the \texttt{fixmath} \cite{33} and \texttt{alphabeta} \cite{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 \texttt{cfr-lm} using \texttt{substitutefont} \cite{65}.

\ifhep@symbols
\RequirePackage{fixmath}
\RequirePackage{alphabeta}
\RequirePackage{substitutefont}
\ifxetexorluatex
% missing code
\else
\substitutefont{LGR}{mdefault}{lmr}
\DeclareFontFamily{LGR}{mdefault}{b}{n}{<->ssub*lmr/bx/n}{}
\DeclareFontShape{LGR}{mdefault}{b}{sc}{<->ssub*lmr/bx/sc}{}
\substitutefont{LGR}{	tdefault}{lmtt}
\DeclareFontFamily{LGR}{	tdefault}{b}{n}{<->ssub*cmtt/bx/n}{}
\DeclareFontShape{LGR}{	tdefault}{b}{sc}{<->ssub*cmtt/bx/sc}{}
\fi
\else
\RequirePackage{MnSymbol}
\RequirePackage{exscale}
\RequirePackage{amssymb}
\fi
\fi

Either load the \texttt{MnSymbol} package \cite{10} or the the \texttt{exscale} package in order to fix Latin Modern \texttt{lmex} fonts. Additionally, load the \texttt{amssymb} package \cite{8} which provides further math symbols and also loads the \texttt{amsfonts} package \cite{8}.

\ifhep@minion
\RequirePackage{MnSymbol}
\else
\RequirePackage{exscale}
\RequirePackage{amssymb}
\fi
\fi

\texttt{\textsf} If the \texttt{sansserif} package option is active use the \texttt{cmbright} font \cite{45} and code adjusted from the \texttt{sansmathfonts} package \cite{26}. Ensure that \texttt{\textsf} is italic as well as sans serif and sans for sans and sans serif documents, respectively.

\ifhep@serif
\newcommand\hep@font@sf{cmbrm}
\DeclareMathAlphabet\hep@font@sf{OML}{\hep@font@sf}{m}{it}
\SetMathAlphabet\hep@font@sf{bold}{OML}{\hep@font@sf}{b}{it}
\else
\newcommand\hep@font@sf{lmr}
\newcommand\hep@font@text{lmss}
\newcommand\hep@font@math{cmbrm}
\newcommand\hep@font@symbol{cmsssy}
\fi
\newcommand\hep@font@extra{cmssex}
\newcommand\hep@font@amsa{ssmsa}
\newcommand\hep@font@amsb{ssmsb}

Declare font substitutions.

\DeclareFontSubstitution{OML}{\hep@font@math}{m}{it}
\ifhep@sectioned\ifhep@minion\else
\DeclareFontSubstitution{OMS}{\hep@font@symbol}{m}{n}
\fi\fi
\DeclareFontSubstitution{OMX}{\hep@font@extra}{m}{n}
\fi\fi

Declare the symbol fonts.

\DeclareSymbolFont{operators}{OT1}{\hep@font@text}{m}{n}
\DeclareSymbolFont{letters}{OML}{\hep@font@math}{m}{it}
\ifhep@sectioned\ifhep@minion\else
\DeclareSymbolFont{symbols}{OMS}{\hep@font@symbol}{m}{n}
\fi\fi
\DeclareSymbolFont{largesymbols}{OMX}{\hep@font@extra}{m}{n}
\fi\fi

Set bold symbol fonts.

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

Adjust the fonts loaded by the amsfonts [8] and esint [66] packages.

\ifhep@sectioned\ifhep@minion\else
\DeclareSymbolFont{AMSa}{U}{\hep@font@amsa}{m}{n}
\DeclareSymbolFont{AMSb}{U}{\hep@font@amsb}{m}{n}
\fi\fi
\AtBeginDocument{\ifpackageloaded{esint}{\\ DeclareSymbolFont{largesymbolsA}{U}{ssesint}{m}{n}}{}
}

Declare the symbol font alphabets.

\DeclareSymbolFontAlphabet{\mathrm}{operators}
\DeclareSymbolFontAlphabet{\mathnormal}{letters}
\ifhep@sectioned\ifhep@minion\else
\DeclareSymbolFontAlphabet{\mathcal}{symbols}
\fi

Declare \textit{}.

\DeclareMathAlphabet{\mathit}{OML}{\hep@font@text}{m}{it}
\SetMathAlphabet{\mathit}{bold}{OML}{\hep@font@text}{bx}{it}
Declare \texttt.
\DeclareMathAlphabet{\mathtt}{OT1}{cmtl}{m}{n}

Declare \textsf.
\DeclareMathAlphabet{\mathsf}{OML}{\hep@font@sf}{m}{it}
\SetMathAlphabet{\mathsf}{bold}{OML}{\hep@font@sf}{bx}{it}

End of sansserif.
\fi

\textbf Load the \texttt{bm} package [30] for superior boldmath. Make math symbols bold whenever they appear in bold macros such as \textsection{\textit{text}}.
\ifhep@symbols
\RequirePackage{bm}
\AtBeginDocument{\let\mathbf\bm}
\g@addto@macro\bfseries{\boldmath}

\textsc Provide the \textsc{mathscr} math script font from the \texttt{mathrsfs} package [48].
\DeclareMathAlphabet{\mathscr}{U}{rsfs}{m}{n}

\textbb Redefine the the \texttt{mathbb} math blackboard style font according to the (sans-)serif option with the font from the \texttt{dsfont} package [9].
\ifhep@minion
\DeclareMathAlphabet{\mathbb}{U}{\ifhep@serif dsrom\else dsss\fi}{m}{n}
\else
\ifhep@ams\else
\SetMathAlphabet{\mathbb}{normal}{U}{\ifhep@serif dsrom\else dsss\fi}{m}{n}
\fi
\fi
\fi

\textbf\textit E.2 Physics notation
\cancel Load the \texttt{physics} package [35] which provides macros useful for publications in physics. Fix the \texttt{eval} macro. Additionally, load the \texttt{cancel} [36] and \texttt{slashed} [37] packages which provide the \texttt{cancel} and \texttt{slashed} macros.
\ifhep@physics
\RequirePackage{physics}

29
Load the \texttt{units} package \citep{units} which provides the \texttt{units} and \texttt{nicefrac} macros. Patch the \texttt{unit} and \texttt{unitfrac} macros to work with lining numerals using the \texttt{xpatch} package \citep{xpatch}.

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

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

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

Provide a differential \texttt{\d}.

\AtBeginDocument{\mathdef{\d}{\dd}}
\oset Define a new overset macro \oset{(offset)}{(over)}{(base)}

\newcommand{\oset}{[3][-1pt]{\text{\raisebox{.2ex}{$\mathop{#3}\limits^{%\text{\kern-2\ex@\hbox{$\scriptscriptstyle#2$}\vss}}$}}%}}

\overleftright Define a over left right arrow \overleftright{(base)}.

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

End of physics conditional.

\fi

F Floats

Adjust the \LaTeX float placement defaults

\setcounter{bottomnumber}{0} % 1
\setcounter{topnumber}{1} % 2
\setcounter{dbltopnumber}{1} % 2
\renewcommand{\topfraction}{.9} % .7
\renewcommand{\dbltopfraction}{.9} % .7
\renewcommand{\textfraction}{.1} % .2
\renewcommand{\floatpagefraction}{.8} % .5

\let\@figure@figure%
\let\@end@figure@endfigure%
\let\@table@table%
\let\@end@table@endtable%
\ifhep@manualplacement%
\renewenvironment{figure}[1][tbp]{%\@figure@[#1]centering%}{%\@end@figure@}%
\renewenvironment{table}[1][tbp]{%\@table@[#1]centering%}{%\@end@table@}%
\else%
\renewenvironment{figure}[1][{}]{%\@figure@centering%}{%\@end@figure@}%
\renewenvironment{table}[1][{}]{%\@table@centering%}{%\@end@table@}%
\fi

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

\let@figure@figure%
\let@end@figure@endfigure%
\let@table@table%
\let@end@table@endtable%
\ifhep@manualplacement%
\renewenvironment{figure}[1][tbp]{%\@figure@[#1]centering%}{%\@end@figure@}%
\renewenvironment{table}[1][tbp]{%\@table@[#1]centering%}{%\@end@table@}%
\else%
\renewenvironment{figure}[1][{}]{%\@figure@centering%}{%\@end@figure@}%
\renewenvironment{table}[1][{}]{%\@table@centering%}{%\@end@table@}%
\fi
F.1 Sub-floats

\ifhep@journal Define a new journal conditional.
\newif\ifhep@journal
\newif\ifhep@sissa\hep@journaltrue
\else
\ifhep@revtex\hep@journaltrue
\else
\ifhep@pos\hep@journaltrue
\else\hep@journalfalse
\fi
\fi
\fi
\ifhep@journal
\setlength\abovecaptionskip{\f@size\p@}
\setlength\belowcaptionskip{0\p@}
\long\def\@makecaption#1#2{\vskip\abovecaptionskip

\sbox\@tempboxa{#1: #2}\
\ifdim \wd\@tempboxa >\hsize
#1: #2\par
\else
\global \@minipagefalse
\hb@xt@\hsize{\hfil\box\@tempboxa\hfil}\
\fi
\vskip\belowcaptionskip%
}
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi

Prevent the \texttt{caption} package [68] from complaining about the journal classes and packages.
\ifhep@journal
\setlength\abovecaptionskip{\f@size\p@}\
\setlength\belowcaptionskip{0\p@}
\long\def\@makecaption#1#2{\vskip\abovecaptionskip

\sbox\@tempboxa{#1: #2}\
\ifdim \wd\@tempboxa >\hsize
#1: #2\par
\else
\global \@minipagefalse
\hb@xt@\hsize{\hfil\box\@tempboxa\hfil}\
\fi
\vskip\belowcaptionskip%
}
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\texttt{panels} Define the \texttt{panels} environment and the \texttt{panel} macro.
\newcommand{\hep@panels@space}{20}
\newenvironment{panels}{2}{b}{%
Define an internal macro for global behaviour.

```latex

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

Define the \texttt{\panel} macro for the case that the number of panels is given.

```latex

\ifdim#2pt>1pt%
  \newcommand{\hep@panel@space}{%
    (1-#2+\hep@panels@space)/\hep@panels@space%
  }%
  \newcommand{\panel}[1][b]{%
    \endminipage\hfill\begin@subcaption@minipage[#1]{%
      \linewidth/#2*\hep@panel@space%}
  }%
\else%
  \newcommand{\panel}[2][b]{%
    \endminipage\hfill\begin@subcaption@minipage[#1]{##2\linewidth}%
  }%
\fi%
```

Define the \texttt{\panel} macro for the case that the width of the panel is given.

```latex

\ifhep@revtex
  \RequirePackage{ragged2e}
  \DeclareCaptionFormat{revtex}{#1#2\justifying{#3}}
  \captionsetup{font=small, format=revtex}
  \captionsetup[sub]{font=footnotesize, format=plain}
  \renewcommand{\figurename}{Figure}
  \renewcommand{\tablename}{Table}
\fi
```

Reajust the captions to the revtex class using the \texttt{ragged2e} package [69].

```latex

\ifhep@revtex
  \RequirePackage{ragged2e}
  \DeclareCaptionFormat{revtex}{#1#2\justifying{#3}}
  \captionsetup{font=small, format=revtex}
  \captionsetup[sub]{font=footnotesize, format=plain}
  \renewcommand{\figurename}{Figure}
  \renewcommand{\tablename}{Table}
\fi
```

\section*{F.2 Tables}

\texttt{tabular} Enhance tabulars with the \texttt{booktabs} and \texttt{multirow} packages [39, 40].

```latex

\RequirePackage{booktabs}
\RequirePackage{multirow}
```

\section*{F.3 Figures}

\texttt{\graphic} Provide the \texttt{\graphic} macro for the inclusion of figures using the \texttt{ graphicx} package [41].
\RequirePackage{graphicx}
\providecommand\tikzsetnextfilename\[1\]{%
\centering\includegraphics[width=#1\linewidth]{#2}\par%
\}

\newcommand{\graphic}[2]{\tikzsetnextfilename{#2}{%}
\centering\includegraphics[width=#1\linewidth]{#2}\par%}

\graphics Provide the \texttt{\graphics} macro for the inclusion of figures located in a subfolder.

\newcommand{\graphics}{1}{\graphicspath{{./#1/}}}

G Title page

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

\newif\ifhep@first%
\newif\ifnewaffil%
\ifhep@title
</package>

Redefine previous macros just for the title package.

%<*package|title>
\date Allow absent date field.
\date{\vspace{-4ex}}

G.1 Titles

Extend the title using the \texttt{titling} package [19].

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

\preprintfont
\seriesfont
\titlefont
\subtitlefont
\editorfont
\authorfont
\affiliationfont
\datefont

Allow to change the fontface of the individual parts of the title.

\let\hep@preprint@font\relax
\newcommand{\preprintfont}{1}{\def{\hep@preprint@font}{#1}}
\let\hep@series@font\relax
\newcommand{\seriesfont}{1}{\def{\hep@series@font}{#1}}
\let\hep@title@font\relax
\newcommand{\titlefont}{1}{\def{\hep@title@font}{#1}}
\let\hep@subtitle@font\relax
\newcommand{\subtitlefont}{1}{\def{\hep@subtitle@font}{#1}}
\let\hep@editor@font\relax
\newcommand{\editorfont}{1}{\def{\hep@editor@font}{#1}}
\let\hep@author@font\relax
\newcommand{\authorfont}{1}{\def{\hep@author@font}{#1}}

34
Define a series.

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

\series Define a series.

\let\hep@pre@series\relax
\newcommand{\preseries}[1]{\def\hep@pre@series{#1}}
\let\hep@series\relax
\newcommand{\series}[1]{\def\hep@series{#1}}
\let\hep@post@series\relax
\newcommand{\postseries}[1]{\def\hep@post@series{#1}}

\subtitle Define a subtitle.

\let\hep@pre@sub@title\relax
\newcommand{\presubtitle}[1]{\def\hep@pre@sub@title{#1}}
\let\hep@sub@title\relax
\newcommand{\subtitle}[1]{\def\hep@sub@title{#1}}
\let\hep@post@sub@title\relax
\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.

\preseries{\begin{center}\Large\hep@series@font}
\postseries{\par\end{center}}
\presubtitle{\begin{center}\Large\hep@subtitle@font}
\postsubtitle{\par\end{center}}
\preauthor{\begin{center}\large\hep@author@font
\lineskip.5em\begin{tabular}[t]{c}}
\postauthor{\end{tabular}\par\end{center}}
\predate{\begin{center}\hep@date@font}
\postdate{\par\end{center}}

G.2 Editors

\newcounter{editors}
\newcommand{\hep@editorlist}{}
\newcommand{\hep@editors}{}

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

\newcommand{\hep@multi@ref}[1]{% 
\hep@firsttrue%
\forcsvlist{% 
\ifhep@false\hep@firstfalse\else\textsuperscript,\fi\ref%
#{1}% 
}\}
\preditor Set editor style
\posteditor

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

Show subtitle and editor.

\renewcommand{\maketitlehookb}{%\@ifundefined{hep@sub@title}{}{\hep@pre@sub@title\hep@sub@title\hep@post@sub@title%\ifx\hep@editorlist\AB@empty\else\hep@pre@editor\hep@editorlist\hep@post@editor%\fi}}

G.3 Authors
\author Allow absent author field. Enable the handling of multiple authors with different affiliations using the \texttt{authblk} package [20].

\renewcommand{\Affilfont}{\small\hep@affiliation@font}
\if\hep@lining
\else
\renewcommand{\Affilfont}{\small\ostyle\hep@affiliation@font}
\fi
\renewcommand{\Authfont}{\hep@author@font}

Switch authblk to a label ref system for affiliations.

\newcounter{affiliation}
\renewcommand{\theaffiliation}{\textsuperscript{\normalfont\arabic{affiliation}}}%
\textsuperscript{\normalfont arabic}{affiliation}}%
\newcommand{\theaffiliation}{%
\RequirePackage{xpatch}
\xpatchcmd{\author}{%\protect\Authfont#2\AB@authnote{\AB@note}%}{%\protect\Authfont#2}%{\relax#1\relax\protect\hep@multi@ref{\AB@note}\fi%}{}}{}
\xpatchcmd{\affil}{%\AB@affilnote{\AB@note}%}{%}{%}{}}{}

37
\email Rendeine the email macro to place the email address in a footnote if called from within the \author macro \author{⟨name⟩ \email{⟨email⟩}}.}

\let\hep@author\author
\def\author{\renewcommand{\email}[1]{\unskip\thanks{\online{mailto:##1}{##1}}}\hep@author}
\affiliation Define the \affiliation macro, ensure that linebreaks happen after a comma.

\newcommand\hep@penalty{\if@twocolumn85\else50\fi}
\newcommand\hep@active@comma{,\penalty-\hep@penalty\relax}
\newcommand\hep@cat@comma@active{\catcode'\,\active}
{\hep@cat@comma@active\gdef,{\hep@active@comma}}
\newcommand\hep@affil[1]{{\endgroup\@flushglue=0pt plus .5\linewidth\affil{#1}}}
\def\hep@affil@opt[#1]{\endgroup\@flushglue=0pt plus .5\linewidth\affil[#1]{#2}}
\DeclareRobustCommand\hep@affiliation{\@ifnextchar[{{\hep@affil@opt}{\hep@affil}}}

G.4 Preprint
\preprint Define the \preprint macro using the varwidth package [70].
\let\hep@preprint\relax
\newcommand\preprint[1]{\def\hep@preprint{#1}}
\RequirePackage{varwidth}
%<title>\RequirePackage{relsize}
\newcommand{\hep@preprint@box}{\begin{varwidth}{\textwidth}\smaller[.5]\hep@preprint\end{varwidth}}
\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.
\begin{abstract}

Adjust the \texttt{abstract} environment to not start with indentation.

\begin{abstract*}

Add a \texttt{abstract*} environment for two column mode taking also care of placing the title using the \texttt{environ} \cite{environ} and \texttt{abstract} \cite{abstract} packages.

End of title conditional.

\end{abstract*}
\end{abstract}
H Bibliography

Check if bibliography management is requested.

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

\providecommand{\DeclareSortingTemplate}{\DeclareSortingScheme}
\DeclareSortingTemplate{hep-paper}{
\sort{\citeorder}
\sort[final]{\field{sortkey}}
\sort{\field{sortyear} \field{year} \literal{9999}}
\sort{\field{month}}
\sort{\field{eprint} \field{doi}}
\sort{\field{sorttitle} \field{title}}
\sort{\field{subtitle} \field{volume}}
}

Use the new sorting scheme and abbreviate all first names.

\ExecuteBibliographyOptions{
\sorting=hep-paper, 
\safeinputenc, 
\giveninits=true, 
\maxbibnames=7 
}

Shrink the bibliography in two column mode.

\ifhep@journal\else
\if@twocolumn
\AtBeginBibliography{\small}
\setlength\biblabelsep{\labelsep}
\fi
\fi

erratum Redefine the translationof string to fit better to documents without an original title.
erratum Add new bibliography string ‘Erratum’ for the use in the relatedtype field.

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

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

Activate the Oxford comma when using \textit{british} and separate title and subtitle with a colon.

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

Allow the bibliography to be printed sloppy
\let\@hep@printbibliography\printbibliography
\renewcommand{\printbibliography}{\sloppy\hep@printbibliography}

\H Sourcemap

\reg@exp@one Define regular expressions in order to deal with inconsistent journal title and volume naming as well as uniform resource locator (URL) protocols and the PMCID.
\reg@exp@two
\reg@exp@url
\reg@exp@pmc
\newcommand{\reg@exp@one}{\regexp{\A(p\L+)\d+(p\L+)?\Z}}
\newcommand{\reg@exp@two}{\regexp{\A(p\L+)+\d+(p\L+)+\Z}}
\newcommand{\reg@exp@url}{\regexp{\A(htf)tp(s)?:/\Z}}
\newcommand{\reg@exp@pmc}{\regexp{\A(PMC)?}}

\DeclareSourcemap Use the \DeclareSourcemap feature.
\maps[datatype=bibtex, overwrite=true]{% collaboration Read the collaboration information if present.
\map{%
\step[fieldset=collaboration, origfieldval, final=true]}

reportnumber Read the pre-print information if present.
\map{%
\step[fieldset=reportnumber, origfieldval, final=true]}

\textbf{journal} \ Move letters from the volume field to the journal field.

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

\textbf{url} \ Remove the protocol from URL.

\begin{verbatim}
804  \map{
805   \step[fieldset=url, final=true]
806   \step[fieldset=protocollessurl, origfieldval, final=true]
807   \step[fieldset=protocollessurl, match=\reg@exp@url, replace={}]
808  }
809  \%#
810\}
\end{verbatim}

\textbf{pmc} \ Remove the PMC from the PMCID.

\begin{verbatim}
811  \map{
812   \step[fieldset=pmcid, final=true]
813   \step[fieldset=pmc, origfieldval, final=true]
814   \step[fieldset=pmc, match=\reg@exp@pmc, replace={}]
815  }
\end{verbatim}

\textbf{\letbibmacro} \ Provide the \texttt{\letbibmacro} macro for old \texttt{biblatex} installations.

\begin{verbatim}
816  \providecommand{\letbibmacro}{\caletcs{abx@macro@#1}{abx@macro@#2}}
\end{verbatim}

\textbf{collaboration} \ Execute the author macro even if only the collaboration information if present and override the author information with collaboration information if present.

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

\newpage
In: Remove spurious ‘In:’ if no journal is present.

\renewbibmacro{in:}{%\iffieldundef{journaltitle}\{}\printtext{\bibstring{in}\intitlepunct}\%\}

\letbibmacro{reportnumber}{Print the \texttt{reportnumber} as \texttt{commalist}}

%<bibliography>\RequirePackage{relsize}\DeclareFieldFormat{reportnumber}{%\edef\commalistbody{\forcsvfield{\egroup\noexpand\item\unexpanded{\bgroup\smaller[.5]\textsc}}}{reportnumber}}%\expandafter{\commalist{\commalistbody}egroup\endcommalist}

\letbibmacro{url}{Show URLs without the protocol.}

\DeclareFieldFormat{url}{%\mkbibacro{URL}\addcolon\space\online{#1}{\thefield{protocollessurl}}}%

\newcommand{\bib@online}[2]{%\ifhyperref{\online{#1}{#2}}{\nolinkurl{#2}}%}

\letbibmacro{pmid}{Present PubMed IDs.}

\letbibmacro{pmcid}{Add the pre-print and PubMed information if present.}

\letbibmacro{doi+eprint+url}{%\let\letbibmacro{hep-doi+eprint+url}{\doi+eprint+url}\iffieldundef{pmc}{%\iffieldundef{pmid}{%\printfield{pmid}\newunit\printfield{pmcid}\newunit}{\printfield{pmc}\newunit}}%\iffieldundef{reportnumber}{%\printfield{reportnumber}\newunit\printfieldpunct\intitlepunct}{\printfield{reportnumber}\newunit}}}
\textbf{H.2 Eprints}

\texttt{\new@eprint} Private \texttt{\new@eprint} macro

\newDocumentCommand{\new@eprint}{smm}{
\DeclareFieldFormat{eprint:#2}{%
\newcommand{\@path}{\IfBooleanT{#1}{\thefield{eprintclass}/}##1}%
#2\addcolon\space\bib@online{#3/\@path}{\@path}%
}%
}

CTAN Add CTAN as a eprint option

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

GitHub Add GitHub as a eprint option

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

GitLab Add GitLab as a eprint option

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

Bitbucket Add Bitbucket as a eprint option

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

Launchpad Add Launchpad as a eprint option

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

SourceForge Add SourceForge as a eprint option

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

HEPForge Add HEPForge as a eprint option

\DeclareFieldFormat{eprint:hepforge}{%
HEPForge\addcolon\space\bib@online{https://#1/hepforge.org}{#1}%
}
\DeclareFieldAlias{eprint:HEPForge}{eprint:hepforge}
\%
I Hyperlinks, Footnotes and References


```latex
\RequirePackage{hyperref}
\hypersetup{
    pdfencoding=auto, psdextra,
    hidelinks, linktoc=all, breaklinks=true,
    pdfcreator={}, pdfproducer={}
}
```

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

```latex
\ifhep@revtex
\AtBeginShipout{\hypersetup{pdftitle={\@title}}}
\else
\ifhep@beamer\else
\AtBeginDocument{\hypersetup{pdftitle={\@title}}}
\fi
\fi
\fihep@title
\AtBeginDocument{\hypersetup{pdfauthor={\AB@authlist}}}
\else
\ifhep@beamer\else
\AtBeginDocument{\hypersetup{pdfauthor={\@author}}}
\fi
\fi
```

I.1 Footnotes

Place a hyperlink from the footnote back to its referencing label using the `footnote-backref` package [75].
\footnote Ensure that no spaces appear before the footmark or at the beginning of the footnote.

I.2 References

Begin of references conditional

\cref Improve reference using the \texttt{cleveref} package \cite{ref1}.

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

\ref Adjust \ref{⟨key⟩} in order to prevent preceding line breaks.

\eqref Adjust \eqref{⟨key⟩} in order to prevent preceding line breaks.

\subref Adjust \subref{⟨key⟩} in order to prevent preceding line breaks.
\subcref Provide the \subcref macro.

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

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

\NewDocumentCommand\eqcrefname{mmo}{\crefname{#1}{#2}{\IfValueTF{#3}{#3}{#2s}}}\creflabelformat{#1}{(##2##1##3)}

\labelcrefrange Define the missing \labelcrefrange\{\langle key1\rangle\}\{\langle key2\rangle\} macro.

\DeclareRobustCommand\labelcrefrange[2]{\@crefrangenostar{labelcref}{#1}{#2}%%
\@crefrangenostar{labelcrefrange}{affiliation}{#3#1#4\textsuperscript{--}#5#2#6}}

\begin{titlepage}

Adjust the title page

\ifhep@title\labelcrefmultiformat{affiliation}{#2#1#3}{\textsuperscript,#2#1#3}{\textsuperscript,#2#1#3}\fi

End of references conditional

I.3 Citations

\cite Adjust \cite\{(key)\} in order to prevent preceding line breaks.

\let\hep@cite\cite
\renewcommand\cite{\no@break@before\hep@cite}

Begin of bibliography if.

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

Define bibstrings for reference names.

\NewBibliographyString{refname}
\NewBibliographyString{refsname}
\DefineBibliographyStrings{english}{% refname = {reference}, refsname = {references}}

\fi

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Define clever citation macros.

\DeclareCiteCommand{\ccite}{% 
  \ifnum\thecitetotal=1 
  \bibstring{refname} 
  \else\fi 
  \bibstring{refsname} 
  \addnbspace\bibopenbracket 
  \usebibmacro{cite:init}\usebibmacro{prenote} 
  \usebibmacro{citeindex}\usebibmacro{cite:comp}{}{ 
  \usebibmacro{cite:dump}\usebibmacro{postnote} 
  \bibclosebracket 
} 
\newrobustcmd*{\Ccite}{\bibsentence\ccite}

End of biblatex if.

J Acronyms

Acronyms are implemented with the glossaries-extra package \cite{glossaries-extra} which is an extension of the glossaries package \cite{glossaries} and must be loaded after the hyperref package in appendix I. Set the abbreviation style.

\ifhep@glossaries 
  \%\</package> 
\%<package|acronyms> 
\RequirePackage[nostyles]{glossaries-extra} 
\setabbreviationstyle{long-hyphen-short-hyphen} 

The entry count feature is used.

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

Provide macros for older glossaries-extra installations.

\AtEndOfPackage{ 
  \@ifpackageloaded{hyperref}{ 
  \providecommand{\glsxtrusefield}[2]{\@gls@entry@field{#1}{#2}} 
  \providecommand{\glsxtrsetfieldifexists}[3]{\glsdoifexists{#1}{#2}{#3}} 
  \providecommand{\GlsXtrSetField}[3]{\glsxtrsetfieldifexists{#1}{#2}{#3}} 
  \csgdef{glo@\glsdetoklabel{#1}@#2}{#3} 
  } 
}
Hyperlinks from the abbreviation to their definition in the text are set.

\begin{sentence}
Mark the beginning of a paragraph as if it would follow a full stop using the `\everyhook` package.

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

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

\def{\frenchspacing}{% 
\sfcode{'}\begin@sentence \sfcode{'}?\begin@sentence
\sfcode{'}\begin@sentence \sfcode{'}:\begin@sentence
\sfcode{'};\@m \sfcode{'},\@m
\begin@sentence}

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

\newcommand{\if@begin@of@sentence}{2}{\leavevmode\protecting{% 
\ifboolexpr{ test {\ifnumcomp{\spacefactor}{=}{3000}} or% 
 test {\ifnumcomp{\spacefactor}{=}{2000}} or% 
 test {\ifnumcomp{\spacefactor}{=}{\begin@sentence}}% 
}}{#1}{#2}%
\begin@sentence}

\acronym
The `\acronym`{{\textit{typeset abbreviation}}}{\textit{(abbreviation)}}{\textit{definition}}{\textit{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

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\usepackage{xspace}
\NewDocumentCommand{\acronym}{somsmo}{
\newabbreviation[
  type=\acronymtype,
  sort=\acronymargument,
  glsshortpluralkey=\IfBooleanTF{\acronymisplural}{\IfNoValueTF{\acronymplural}{\IfNoValueTF{\acronymargument}{\acronymargument}{\acronymargument}}}{\IfNoValueTF{\acronymplural}{\acronymplural}{\acronymplural}}},
  longplural=\IfNoValueTF{\acronymisplural}{\acronymargument}{\acronymplural}}%
]{\acronym}{\IfNoValueTF{\acronymargument}{\acronym}{\acronym}}
%
\selectlanguage{english}

Provide the singular acronym macro.
\expandafter\newcommand\csname\acronym\endcsname[1][%\if@begin@of@sentence{%\ifglsused{\acronym}{\gls{\acronym}[##1]}{\cGls{\acronym}[##1]}%\{\cGls{\acronym}[##1]}%\IfBooleanTF{\acronymisplural}{\cGlspl{\acronym}[##1]}{\cGls{\acronym}[##1]}%\else\@xspace\fi%\text{\glsxtrshort{\acronym}}\@gls@increment@currcount{\acronym}]{%\@xspace\fi

Expand the singular acronym macro in PDF labels.
\pdfstringdefDisableCommands{\expandafter\def\csname\acronym\endcsname{\IfNoValueTF{\acronymargument}{\acronym}{\acronym}}%}

Provide the singular acronym macro in math mode.
\expandafter\mathdef\csname\acronym\endcsname{\text{\glsxtrshort{\acronym}}\@gls@increment@currcount{\acronym}}

Provide the plural acronym macro.
\expandafter\newcommand\csname\acronym\endcsname[1][{%\if@begin@of@sentence{%\ifglsused{\acronym}{\gls{\acronym}[##1]}{\cGls{\acronym}[##1]}%\{\cGls{\acronym}[##1]}%\IfBooleanTF{\acronymisplural}{\cGlspl{\acronym}[##1]}{\cGls{\acronym}[##1]}%\else\@xspace\fi%\text{\glsxtrshortpl{\acronym}}\@gls@increment@currcount{\acronym}]{%\@xspace\fi

Expand the plural acronym macro in PDF labels.
\pdfstringdefDisableCommands{\expandafter\def\csname\acronym\endcsname{\IfNoValueTF{\acronymargument}{\acronym}{\acronym}}%}

Provide the plural acronym macro in math mode.
\expandafter\mathdef\csname\acronym\endcsname{\text{\glsxtrshortpl{\acronym}}\@gls@increment@currcount{\acronym}}
The \shortacronym never expands into the long form.

\NewDocumentCommand{\shortacronym}{somsmo}{
  Provide the singular acronym macro.
  \expandafter\newcommand\csname#3\endcsname[1][1]{
    \IfNoValueTF{#2}{#3}{#2}\IfBooleanTF{#4}{}{\@xspace}##1%
  }
  Expand the singular acronym macro in PDF labels.
  \pdfstringdefDisableCommands{\expandafter\def\csname#3\endcsname{%
    \IfNoValueTF{#2}{#3}{#2} }%
  }
  Provide the singular acronym macro in math mode.
  \expandafter\mathdef\csname#3\endcsname{%
    \IfNoValueTF{#2}{#3}{#2}}%
  Provide the plural acronym macro.
  \expandafter\newcommand\csname#3s\endcsname[1][1]{
    \IfBooleanTF{#1}{#3}{\IfNoValueTF{#2}{#3s}{#2s}}%
  }
  Expand the plural acronym macro in PDF labels.
  \pdfstringdefDisableCommands{\expandafter\def\csname#3s\endcsname{%
    \IfBooleanTF{#1}{#3}{\IfNoValueTF{#2}{#3s}{#2s}} }%
  }
  Provide the plural acronym macro in math mode.
  \expandafter\mathdef\csname#3s\endcsname{%
    \IfBooleanTF{#1}{#3}{\IfNoValueTF{#2}{#3s}{#2s}}}%
  \longacronym The \longacronym never shows the abbreviated form.

\NewDocumentCommand{\longacronym}{somsmo}{
  Provide the singular acronym macro.
  \expandafter\newcommand\csname#3\endcsname[1][1]{
    \if@begin@of@sentence\MakeUppercase#5}{#5}%
    \IfBooleanTF{#4}{}{\@xspace}##1%
  }
  Expand the singular acronym macro in PDF labels.
  \pdfstringdefDisableCommands{\expandafter\def\csname#3\endcsname{%
    \IfBooleanTF{#1}{#3}{\IfNoValueTF{#2}{#3s}{#2s}} }%
  }
  Provide the plural acronym macro in math mode.
  \expandafter\mathdef\csname#3s\endcsname{%
    \IfBooleanTF{#1}{#3}{\IfNoValueTF{#2}{#3s}{#2s}}}%

Expand the singular acronym macro in PDF labels.
\pdfstringdefDisableCommands{\expandafter\def\csname#3\endcsname{#5 }}

Provide the plural acronym macro.
\expandafter\newcommand\csname#3s\endcsname[1][]{{% 
  \if@begin@of@sentence{% 
    \IfNoValueTF{#6}{\MakeUppercase#5s}{\MakeUppercase#6}% 
  }{% 
    \IfNoValueTF{#6}{#5s}{#6}}\IfBooleanTF{#4}{}{\@xspace}##1%
}\}}

Expand the plural acronym macro in PDF labels.
\pdfstringdefDisableCommands{\expandafter\def\csname#3s\endcsname{% 
  \IfNoValueTF{#6}{#5s}{#6} }%}

Silence warning if no acronyms are defined.
\renewcommand*{\@gls@write@entrycounts}{% 
  \immediate\write\@auxout{\string\providecommand*{\string\@gls@entry@count}{}}% 
  \count@=0\relax
  \forallglsentries{\@glsentry}{% 
    \glshasattribute{\@glsentry}{entrycount}{% 
      \ifglsused{\@glsentry}{% 
        \immediate\write\@auxout{\string\@gls@entry@count{\@glsentry}{\glsentrycurrcount{\@glsentry}}}% 
      }{% 
        \advance\count@ by \@ne
      }% 
    }}% 
  }% 
}\resetacronym \dummyacronym

Add two macros for acronym management.
\newcommand{\resetacronym}[1]{\protect\glsreset{#1}}
\newcommand{\dummyacronym}[1]{\protect\glsunset{#1}}

abstract

Adjust the abstract environment to reset all acronym counters.
\ifndef{endabstract}{% 
  \let\end@hep@abstract\endabstract% 
  \renewcommand{endabstract}{\glsresetall\end@hep@abstract}% 
}\}

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

Add a possibility to have different groups of acronyms.

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

**K Biblatex datamodel file**

collaboration, pmid, pmcid, pmc, reportnumber, protocollessurl

K Biblatex datamodel file

collaboration, pmid, pmcid, pmc, reportnumber, protocollessurl

End of glossaries if.

K Biblatex datamodel file

collaboration, pmid, pmcid, pmc, reportnumber, protocollessurl

K Biblatex datamodel file

collaboration, pmid, pmcid, pmc, reportnumber, protocollessurl
References


[31] \LaTeX Team. \LaTeX 2ε font selection: Docmentation of \LaTeX font commands’ (1995). CTAN: fntguide.


Change History

v1.0
General: Initial version of the style file.  1

v1.1
General: Transition to documented \LaTeX{} source file.  .................  1

v1.2
General: Introduction of package options.  .................  1

v1.3
General: Inclusion of JHEP and JCAP package options. Fix of incompatibility with recent subcaption package version. Move of biblatex datamodel into its own file  .................  1
general: if possible the compatibility options are selected automatically.
inclusion of pubmed ids in bibliography.

v1.4

general: reduce the number of math alphabets used in sans serif mode.
add more title options such as a subtitle. use standard class options.

v1.6

general: implementation of the twocolumn mode.

v1.7

general: introduction of dedicated style file for the title, acronyms and bibliography macros.
extension of the title macros.

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