

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.

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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 \LaTeX 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 using the `HEP-FONT` package [3]. Finally, portable document format (PDF) hyperlinks are implemented with the `HYPERREF` package [4].

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 11 pt.
- `lang` The `lang=name` option switches the document language. 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 [5]. The \LaTeX default is separation via indentation the `parskip` option switches to separation via vertical space.¹
- `symbols` The `symbols=family` is passed to the `HEP-MATH-FONT` package [6] and sets the family of the symbol fonts. `symbols=false` deactivates loading any additional symbol fonts.

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 `HEP-BIBLIOGRAPHY` package [7] if `key=false`.

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.

- `glossaries` The `glossaries=false` option deactivates acronyms and the use of the `HEP-ACRONYM` package [8].
- `references` The `references=false` option prevents the `CLEVEREF` package [9] 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` [10] compatibility mode.
- `jhep` The `jhep` option activates the `JHEP` [11] compatibility mode.
- `jcap` The `jcap` option activates the `JCAP` [12] compatibility mode.
- `revtex` The `revtex` option activates the `REVTeX` [13] compatibility mode.
- `pos` The `pos` option activates the `POS` compatibility mode.
- `springer` The `springer` option activates the compatibility mode the `svjour` class [14].

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 deprecated `eqnarray` environment.

2 Macros and environments

- `twocolumn` If the global `twocolumn` option is present the page geometry is changed to cover 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 `HEP-TITLE` package [15].
- `\title` The PDF meta information is set according to the `\title{<text>}` and `\author{<text>}` information.
- `\subtitle` The `\subtitle{<subtitle>}` macro is defined.
- `\editor` The following lines add *e.g.* two authors with different affiliations
- `\author`
- `\affiliation`
- `\email`

	<code>\author[1]{Author one \email{email one}}</code>
	<code>\affiliation[1]{Affiliation one}</code>
	<code>\author[2]{Author two \email{email two}}</code>
	<code>\affiliation[1,2]{Affiliation two}</code>
<code>\preprint</code>	The <code>\preprint{<number>}</code> macro places a pre-print number in the upper right corner of the title page.
<code>abstract</code>	The <code>abstract</code> environment is adjusted to not start with an indentation.
<code>\titlefont</code>	Various title font macros are defined, allowing to change the appearance of the
<code>\subtitlefont</code>	<code>\maketitle</code> output.
<code>\authorfont</code>	2.2 Text
<code>\affiliationfont</code>	The <code>inlinelist</code> and <code>enumdescript</code> environments are defined.
<code>\preprintfont</code>	A bold versions SMALL CAPS and a sans serif version of SMALL CAPS is provided.
<code>inlinelist</code>	The <code>\underline</code> macro is redefined to allow line-breaks. The <code>\overline</code> macro is
<code>enumdescript</code>	extended to also <code>\overline</code> text outside of math environments.
<code>\textsc</code>	If the <code>parskip</code> option is activated the <code>\useparindent</code> macro switches to the usual
<code>\underline</code>	parindent mode, while the <code>\useparskip</code> macro switches to the <code>parskip</code> mode.
<code>\overline</code>	
<code>\useparskip</code>	2.2.1 References and footnotes
<code>\useparindent</code>	References are extended with the <code>CLEVEREF</code> package [9], which allows to <i>e.g.</i> just type
<code>\cref</code>	<code>\cref{<key>}</code> in order to write ‘figure 1’. Furthermore, the <code>CLEVEREF</code> package allows
	to reference multiple objects within one <code>\cref{<key1,key2>}</code> .
<code>\cite</code>	Citations are adjusted to not start on a new line in order to avoid the repeated use
	of <code>~\cite{<key>}</code> .
<code>\ref</code>	References are also adjusted to not start on a new line.
<code>\eqref</code>	Footnotes are adjusted to swallow white space before the footnote mark and at the
<code>\subref</code>	beginning of the footnote text.
<code>\footnote</code>	2.2.2 Acronyms
<code>\acronym</code>	The <code>HEP-ACRONYM</code> package [8] is loaded. The <code>\acronym{<*>[<typeset abbreviation>]</code>
<code>\shortacronym</code>	<code>{<abbreviation>}<*>{<definition>}[<plural definition>]</code> macro generates the singular
<code>\longacronym</code>	<code>\<abbreviation></code> and plural <code>\<abbreviation>s</code> 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 <code>\shortacronym</code>
	and <code>\longacronym</code> macros are drop-in replacements of the <code>\acronym</code> macro showing
	only the short or long form of their acronym.

2.3 Math

<code>\mathbf</code>	The HEP-MATH [16] and HEP-MATH-FONT [6] packages are loaded. Bold math, via <code>\mathbf</code> is improved, <i>i.e.</i> ($Ab\Gamma\delta\mathbf{Ab}\mathbf{\Gamma}\mathbf{\delta}$). Macros switching to <code>bfseries</code> such as
<code>\text</code>	<code>\section{<text>}</code> are ensured to also typeset math in bold. The <code>\text{<text>}</code> macro
<code>\mathsf</code>	makes it possible to write text within math mode, <i>i.e.</i> ($Ab\Gamma\delta\mathbf{Ab}\mathbf{\Gamma}\mathbf{\delta}$). 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>i.e.</i> ($Ab\Gamma\delta\mathbf{Ab}\mathbf{\Gamma}\mathbf{\delta}$). The <code>\mathcal</code> font <i>i.e.</i> ($\mathcal{A}\mathcal{B}\mathcal{C}\mathcal{D}$)
<code>\mathscr</code>	is accompanied by the <code>\mathscr</code> font <i>i.e.</i> ($\mathscr{A}\mathscr{B}\mathscr{C}\mathscr{D}$). The <code>\mathbb</code> font is adjusted
<code>\mathbb</code>	depending on the <code>sansserif</code> option <i>i.e.</i> ($\mathbb{A}\mathbb{h}\mathbb{1}$). Finally, the <code>\mathfrak</code> font is also
<code>\mathfrak</code>	available <i>i.e.</i> ($\mathfrak{A}\mathfrak{a}\mathfrak{B}\mathfrak{b}\mathfrak{1}\mathfrak{2}$).
<code>\nicefrac</code>	The <code>\frac{<number>}{<number>}</code> macro is accompanied by <code>\nicefrac{<number>}{<number>}</code>
<code>\flatfrac</code>	<code>\textfrac{<number>}{<number>}</code> , and <code>\flatfrac{<number>}{<number>}</code>
<code>\textfrac</code>	leading to $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, and $\frac{1}{2}$. Diagonal matrix <code>\diag</code> and signum <code>\sgn</code> operators are defined.
<code>\diag</code>	The <code>\mathdef{<name>}[<arguments>]{<code>}</code> macro (re-)defines macros only within
<code>\sgn</code>	math mode without changing the text mode definition.
<code>\mathdef</code>	The imaginary unit <code>i</code> and the differential <code>d</code> are defined using this functionality.
<code>\i</code>	For longer paper it can be useful to re-number the equation in accordance with the
<code>\d</code>	section numbering <code>\numberwithin{equation}{section}</code> . In order to further reduce
<code>\numberwithin</code>	the size the of equation counter it can be useful to wrap <code>align</code> environments with
<code>subequations</code>	multiple rows in a <code>subequations</code> environment.
<code>\unit</code>	The correct spacing for units, <i>cf.</i> equation (1), is provided by the macro <code>\unit{<value>}</code>
<code>\inv</code>	<code>{<unit>}</code> which can also be used in text mode. The macro <code>\inv[<power>]{<text>}</code>
	allows to avoid math mode also for inverse units such as 5fb^{-1} typeset via <code>\unit[5]{\inv{fb}}</code> .
	Greek letters are adjusted to always be italic and upright in math and text mode, respectively, using the HEP-MATH-FONT [6] package. This allows differentiations like
	$\sigma = 5\text{fb}, \quad \text{at } 5\sigma\text{ C.L.}, \quad \mu = 5\text{cm}, \quad l = 5\mu\text{m}. \quad (1)$
	Additionally, Greek letters can also be directly typed using Unicode.
<code>\ev</code>	The HEP-MATH package [16] provides additional macros such as
<code>\pdv</code>	$\langle\phi\rangle$,
<code>\comm</code>	$\frac{\partial^3 f}{\partial x \partial y^2}$,
<code>\order</code>	$[A, B]$,
<code>\cancel</code>	$\mathcal{O}(x^2)$,
<code>\slashed</code>	$x _0^\infty$,
<code>\overleftarrow</code>	$\det(M)$. (2)
	The <code>\cancel{<characters>}</code> macro and the <code>\slashed{<character>}</code> macro allow to
	cancel math and use the Dirac slash notation <i>i.e.</i> $\cancel{\phi}$, respectively.
	A better looking over left right arrow is defined <i>i.e.</i> $\overleftarrow{\partial}$.

2.4 Floats

- `figure` 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 HEP-FLOAT package [17]. The most useful float placement is usually achieved by placing the float *in front* of the paragraph it is referenced in first.
- `table`
- `panels` The `panels` environment 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 `\linewidth`. Within the `\begin{panels}[\langle vertical alignment \rangle]{\langle width \rangle}` environment the `\panel` macro 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{\langle width \rangle}` macro takes the width of the next sub-float as mandatory argument.
- `\panel`
- `\graphic` The `\graphic[\langle width \rangle]{\langle figure \rangle}` macro is defined, which is a wrapper for the `\includegraphics{\langle figure \rangle}` 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{\langle subfolder \rangle}`.
- `\graphics`

2.5 Bibliography

- `\bibliography` The BIBLATEX package [18] is loaded for bibliography management. The user has to add the line `\bibliography{\langle my.bib \rangle}` to the preamble of the document and `\printbibliography` at the end of the document. The bibliography is generated by BIBER [19]. BIBLATEX is extended by the HEP-BIBLIOGRAPHY package [7] 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.
- `\printbibliography`
- `erratum`

```
\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` [20] 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 [21] alleviates this problem by collecting all files necessary for publication on arXiv (including figures).

A Options

<*package>

Load the KVOPTIONS package [22] and define a **hep** namespace.

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

paper Define a **paper**= $\langle size \rangle$ option. Make A4 paper the default.

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

font Define a **figures**= $\langle size \rangle$ option. Make 11 pt the default font size.

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

lang Define the **lang** option, which takes the values provided by the BABEL package [23]. Make **british** the default language.

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

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

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

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

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

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

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

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

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

A.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.

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

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

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

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

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

bibliography Provide the **bibliography** option for passing a **style** string to the BIBLATEX package [18] or disabling the automatic loading of **biblatex**.

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

glossaries Provide the **glossaries** option able to turn of the use of the HEP-ACRONYM package [8].

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

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

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

A.2 Compatibility

beamer Provide the **beamer** option for BEAMER [10] compatibility mode.

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

revtex Provide the **revtex** option for REVTeX [13] compatibility mode.

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

jhep Provide the **jhep** option for JHEP [11] compatibility mode.

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

jcap Provide the **jcap** option for JCAP [12] compatibility mode.

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

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

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

springer Provide the springer option for Springer compatibility mode.

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

amsart Provide the amsart option for AMS article compatibility mode.

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

A.3 Reactivation

eqnarray Provide the eqnarray option for reactivating the eqnarray environment.

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

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

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

A.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 {}}
```

A.5 Set compatibility

Set the amsart compatibility options.

```
44 \@ifclassloaded{amsart}{\setkeys{hep}{amsart}}{}
45 \ifhep@amsart
46 \setkeys{hep}{defaults, title=false}
47 \RequirePackage{xpatch}
48 \xpretocmd{\@adminfootnotes}{\let\@makefntext\BHFN@OldMakefntext}{}{}
49 \fi
```

Set the springer compatibility options.

```
50 \@ifclassloaded{svjour}{\setkeys{hep}{springer}}{}
51 \@ifclassloaded{svjour2}{\setkeys{hep}{springer}}{}
```

```

52 \@ifclassloaded{svjour3}{\setkeys{hep}{springer}}{}
53 \ifhep@springer
54   \setkeys{hep}{defaults, title=false}
55   \let\cl@chapter\undefined
56 \fi

```

Set the pos compatibility options.

```

57 \@ifclassloaded{PoS}{\setkeys{hep}{pos}}{}
58 \ifhep@pos
59   \setkeys{hep}{defaults, title=false}
60   \DeclareRobustCommand\boldmath{\@nomath\boldmath\mathversion{bold}}
61 \fi

```

Set the beamer compatibility options.

```

62 \@ifclassloaded{beamer}{\setkeys{hep}{beamer}}{}
63 \ifhep@beamer
64   \setkeys{hep}{defaults, title=false, references=false, sansserif}
65   \@ifpackageloaded{beamerbasefont}{\usefonttheme{professionalfonts}}{}
66   \setbeamertemplate{navigation symbols}{}
67 \fi

```

Set the revtex compatibility options.

```

68 \@ifclassloaded{revtex4}{\setkeys{hep}{revtex}}{}
69 \@ifclassloaded{revtex4-1}{\setkeys{hep}{revtex}}{}
70 \@ifclassloaded{revtex4-2}{\setkeys{hep}{revtex}}{}
71 \ifhep@revtex
72   \setkeys{hep}{defaults, title=false, bibliography=false, lang=american}
73 \fi

```

Define the SISSA conditional.

```

74 \@ifpackageloaded{jheppub}{\setkeys{hep}{jhep}}{}
75 \@ifpackageloaded{jcappub}{\setkeys{hep}{jcap}}{}
76 \newif\ifhep@sisssa
77 \ifhep@jhep\hep@sisssatrue
78 \else
79   \ifhep@jcap\hep@sisssatrue
80   \else\hep@sissafalse
81   \fi
82 \fi

```

Set the SISSA compatibility options.

```

83 \ifhep@sisssa
84   \setkeys{hep}{defaults, title=false, bibliography=false}
85   \PassOptionsToPackage{
86     colorlinks=true, linktocpage=true, pdfproducer=medialab, pdfa=true,
87     urlcolor=blue, anchorcolor=blue, citecolor=blue, filecolor=blue,
88     linkcolor=blue, menucolor=blue, pagecolor=blue

```

```

89   }{hyperref}
90   \AtBeginDocument{\renewcommand{\foreignabbrfont}{}}
91 \fi
92 %
93 % \section{Font}
94 %
95 % Set the whole text to sans serif if requested.
96 %   \begin{macrocode}
97 \ifhep@serif\else
98   \renewcommand{\familydefault}{\sfdefault}
99 \fi

```

Load the hep-font package.

```
100 \RequirePackage[lining=\ifhep@lining true\else false \fi]{hep-font}
```

A.6 Math fonts

Load the hep-math-font package.

```
101 \RequirePackage[symbols=\hep@symbols]{hep-math-font}
```

A.7 Font size

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

```

102 \ifhep@defaults\else
103   \def\hep@remove@pt#1pt{#1}
104   \edef\hep@pt@size{\expandafter\hep@remove@pt\hep@font}
105   \let\small\relax
106   \let\footnotesize\relax
107   \let\scriptsize\relax
108   \let\tiny\relax
109   \let\large\relax
110   \let\Large\relax
111   \let\LARGE\relax
112   \let\huge\relax
113   \let\Huge\relax
114   \input{size\hep@pt@size.clo}
115 \fi

```

B Geometry

Load the GEOMETRY package [2] and adjust the text width and height. This step must happen after readjusting the font size in appendix A.7.

```

116 \ifhep@defaults\else
117   \RequirePackage{geometry}
118   \geometry{\hep@paper paper, includeheadfoot}

```

```

119 \if@twocolumn
120   \geometry{hscale=.85, vscale=.925, vmarginratio=1:1}
121   \geometry{headsep=2ex, footskip=6ex}
122   \setlength{\columnsep}{1.1em}
123 \else
124   \geometry{hscale=.75, vscale=.8, vmarginratio=3:4}
125 \fi
126 \fi

```

`\useparskip` Load the PARSKIP package [5] if requested and provide two commands switching
`\useparindent` between the two paragraph modes.

```

127 \ifhep@parindent\else
128 \RequirePackage{parskip}
129 \newcommand{\useparskip}{%
130   \setlength{\parskip}{.5\baselineskip plus 2pt}%
131   \setlength{\parindent}{0pt}%
132 }
133 \newcommand{\useparindent}{%
134   \setlength{\parskip}{0pt}%
135   \setlength{\parindent}{15pt}%
136   \if@twocolumn\setlength\parindent{1em}
137   \else\setlength\parindent{1.5em}
138   \fi
139 }
140 \fi

```

C Text

Load the HEP-TEXT package [24].

```
141 \RequirePackage[lang=\hep@lang]{hep-text}
```

D Math

```
142 \ifhep@physics\RequirePackage{hep-math}\fi
```

E Floats

Adjust the L^AT_EX float placement defaults

```

143 \RequirePackage[
144   manualplacement=\ifhep>manualplacement true\else false \fi
145 ]{hep-float}

```

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

```

146 \newif\ifhep@journal
147 \ifhep@sissa\hep@journaltrue

```

```

148 \else\ifhep@revtex\hep@journaltrue
149 \else\ifhep@pos\hep@journaltrue
150 \else\ifhep@springer\hep@journaltrue
151 \else\hep@journalfalse
152 \fi
153 \fi
154 \fi
155 \fi

```

Prevent the CAPTION package [25] from complaining about the journal classes and packages.

```

156 \ifhep@journal
157 \setlength\abovecaptionskip{\f@size\p@}
158 \setlength\belowcaptionskip{0\p@}
159 \long\def\@makecaption#1#2{%
160 \vskip\abovecaptionskip
161 \sbox\@tempboxa{#1: #2}%
162 \ifdim \wd\@tempboxa >\hsize
163 #1: #2\par
164 \else
165 \global \@minipagefalse
166 \hb@xt@\hsize{\hfil\box\@tempboxa\hfil}%
167 \fi
168 \vskip\belowcaptionskip%
169 }
170 \fi

```

Readjust the document captions to look like the original revtex captions using the RAGGED2E package [26].

```

171 \ifhep@revtex
172 \RequirePackage{ragged2e}
173 \DeclareCaptionFormat{revtex}{#1#2\justifying{#3}}
174 \captionsetup{font=small, format=revtex}
175 \captionsetup[sub]{font=footnotesize, format=plain}
176 \renewcommand{\figurename}{Figure}
177 \renewcommand{\tablename}{Table}
178 \fi

```

F Title page

Begin of title conditional.

```

179 \ifhep@title\RequirePackage{hep-title}\fi

```

G Bibliography

Check if bibliography management is requested using the PDFTEXCMDS package [27].

```
180 \RequirePackage{pdftexcmds}
181 \ifnum\pdf@strcmp{\hep@bibliography}{false}=0\else
182   \RequirePackage[style=\hep@bibliography]{hep-bibliography}
183 \fi
```

H Hyperlinks, Footnotes and References

Load the HYPERREF package [4] enable Unicode encoding and hide links.

```
184 \RequirePackage{hyperref}
185 \hypersetup{
186   pdfencoding=auto, psdextra,
187   hidelinks, linktoc=all, breaklinks=true,
188   pdfcreator={}, pdfproducer={}
189 }
```

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

```
190 \pdfstringdefDisableCommands{\def\varepsilon{\textepsilon}}
191 \pdfstringdefDisableCommands{\def\to{\textrightarrow}}
192 \AtBeginDocument{
193   \pdfstringdefDisableCommands{\let\ensuremath@gobble}
194   \pdfstringdefDisableCommands{\let\mathsurround@gobble}
195   \pdfstringdefDisableCommands{\let\unskip@gobble}
196   \pdfstringdefDisableCommands{\let\thanks@gobble}
197   \pdfstringdefDisableCommands{\let\footnote@gobble}
198   \pdfstringdefDisableCommands{\let\\\@gobble}
199 }
200 \ifhep@revtex
201   \AtBeginShipout{\hypersetup{pdftitle={\@title}}}
202 \else
203   \ifhep@beamer\else
204     \AtBeginDocument{\hypersetup{pdftitle={\@title}}}
205   \fi
206 \fi
207 \ifhep@title
208   \AtBeginDocument{\hypersetup{pdfauthor=\AB@authlist}}
209 \else
210   \ifhep@beamer\else
211     \ifhep@pos\else\AtBeginDocument{\hypersetup{pdfauthor={\@author}}}\fi
212   \fi
213 \fi
```


H.1 Footnotes

Place a hyperlink from the footnote back to its referencing label using the FOOTNOTE-BACKREF package [28].

```
214 \def\BackrefFootnoteTag{}
215 \RequirePackage{footnotebackref}
```

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

```
216 \let\@foot@note\footnote
217 \renewcommand{\footnote}[1]{\unskip\@foot@note{\ignorespaces#1}}
```

H.2 References

Begin of references conditional

```
218 \ifhep@references
```

`\cref` Improve reference using the CLEVEREF package [9].

```
219 \RequirePackage[noabbrev, nameinlink]{cleveref}
220 \newcommand{\creflastconjunction}{, and\nobreakspace}
221 \crefname{enumi}{point}{points}
222 \crefname{inlinelisti}{point}{points}
```

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

```
223 \newcommand\no@break@before{%
224   \relax\ifvmode\else%
225     \ifhmode%
226       \ifdim\lastskip > 0pt%
227         \relax\unskip\nobreakspace%
228       \fi%
229     \fi%
230   \fi%
231 }
```

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

```
232 \let\hep@ref\ref
233 \AtBeginDocument{\renewcommand\ref{\no@break@before\hep@ref}}
```

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

```
234 \renewcommand\eqref{\no@break@before\labelcref}
```

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

```
235 \let\hep@subref\subref
```

```

236 \renewcommand\subref{\no@break@before\hep@subref}
237 \renewcommand*\subcaption@ref[2]{\begingroup%
238   \caption@setoptions{sub}%
239   \subcaption@reffmt\p@subref{\hep@ref#1{sub@#2}}%
240 \endgroup}

```

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

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

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

```

242 \NewDocumentCommand{\eqcrefname}{mmo}{
243   \crefname{#1}{#2}{\IfValueTF{#3}{#3}{#2s}}
244   \creflabelformat{#1}{(##2##1##3)}
245 }

```

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

```

246 \DeclareRobustCommand{\labelcrefrange}[2]{%
247   \@crefrangenostar{labelcref}{#1}{#2}%
248 }

```

Adjust the title page

```

249 \ifhep@title
250   \labelcrefmultiformat{affiliation}{#2#1#3}{%
251     \textsuperscript,#2#1#3}{\textsuperscript,#2#1#3%
252   }{%
253     \textsuperscript,#2#1#3%
254   }
255   \labelcrefrangeformat{affiliation}{#3#1#4\textsuperscript{--}#5#2#6}
256 %   \thanksmarkseries{alph}
257 \fi

```

End of references conditional

```
258 \fi
```

H.3 Citations

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

```

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

```

I Acronyms

Define acronyms if not deactivated.

Acronyms are implemented in the HEP-ACRONYM package [8] and must be loaded after the HYPERREF package in appendix H. Set the abbreviation style.

```
261 \ifhep@glossaries\RequirePackage{hep-acronym}\fi
</package>
```

J Tests

J.1 JHEP

```
<*testJHEP>
262 \documentclass[a4paper, 11pt]{article}
263
264 \usepackage{jheppub}
265 \usepackage[lang=english]{hep-paper}
266 \usepackage[math]{blindtext}
267
268 \begin{document}
269
270 \title{Title}
271
272 \emailAdd{first@email.com}
273 \author[a]{First author}
274 \emailAdd{second@email.com}
275 \author[b]{Second author}
276 \affiliation[a]{First affiliation}
277 \affiliation[b]{Second affiliation}
278
279 \abstract{\blindtext}
280
281 \maketitle
282
283 \Blinddocument
284
285 \end{document}
</testJHEP>
```

J.2 JCAP

```
<*testJCAP>
286 \documentclass[a4paper, 11pt]{article}
287
288 \usepackage{jcapub}
289 \usepackage[lang=english]{hep-paper}
290 \usepackage[math]{blindtext}
291
```

```

292 \begin{document}
293
294 \title{Title}
295
296 \emailAdd{first@email.com}
297 \author[a]{First author}
298 \emailAdd{second@email.com}
299 \author[b]{Second author}
300 \affiliation[a]{First affiliation}
301 \affiliation[b]{Second affiliation}
302
303 \abstract{\blindtext}
304
305 \maketitle
306
307 \Blinddocument
308
309 \end{document}

```

</testJCAP>

J.3 AMSArt

<*testAMSArt>

```

310 \documentclass{amsart}
311
312 \usepackage[lang=english]{hep-paper}
313 \usepackage[math]{blindtext}
314
315 \title{title}
316
317 \author{Author}
318 \address{Address 1}
319 \email{first@email.com}
320 \author{Author 2}
321 \email{second@email.com}
322 \address{Address 2}
323
324 \date{date}
325
326 \begin{document}
327
328 \begin{abstract}
329 \blindtext
330 \end{abstract}
331
332 \maketitle
333
334 \Blinddocument
335

```

```
336 \end{document}
```

```
</testAMSArt>
```

J.4 Beamer

```
<*testBeamer>
```

```
337 \documentclass{beamer}
338
339 \usepackage[lang=english]{hep-paper}
340 \usepackage[math]{blindtext}
341
342 \title{Title}
343 \subtitle{Subtitle}
344 \author{Author}
345 \institute{Institute}
346 \date{Event}
347
348 \begin{document}
349
350 \frame{\titlepage}
351
352 \begin{frame}{Frame title}
353 \blindtext
354 \end{frame}
355
356 \end{document}
```

```
</testBeamer>
```

J.5 PoS

```
<*testPoS>
```

```
357 \documentclass{PoS}
358
359 \usepackage[lang=english,title=false]{hep-paper}
360 \usepackage[math]{blindtext}
361
362 \title{Title}
363
364 \author{First author \thanks{first@email.com}}
365 \author{
366 \speaker{Second author is speaker}\\
367 First affiliation\\
368 E-mail: \email{second@email.com}
369 }
370 \author{Third author \thanks{\email{third@email.com}}\\Second affiliation}
371 \author{Fourth author\\Third affiliation}
372 \FullConference{Full conference}
```

```

373 \ShortTitle{Short title}
374
375 \begin{abstract}
376 \blindtext
377 \end{abstract}
378
379 \begin{document}
380
381 \Blinddocument
382
383 \end{document}

```

</testPoS>

J.6 RevTeX

<*testRevTeX>

```

384 \documentclass[
385   aps,
386   prl,
387   reprint,
388   nofootinbib,
389   nobibnotes,
390   superscriptaddress,
391   preprintnumbers,
392 ]{revtex4-2}
393
394 \usepackage{hep-paper}
395 \usepackage[math]{blindtext}
396
397 \begin{document}
398
399 \title{Title}
400
401 \author{First author}
402 \email[E-mail me at: ]{first@email.com}
403 \affiliation{First affiliation}
404 \author{Second author}
405 \email{second@email.com}
406 \affiliation{Second affiliation}
407 \affiliation{Third affiliation}
408 \author{Third author}
409 \affiliation{Fourth affiliation}
410
411 \begin{abstract}
412 \blindtext
413 \end{abstract}
414
415 \maketitle
416

```

```
417 \Blinddocument
418
419 \end{document}
```

</testRevTeX>

J.7 Springer

<*testSpringer>

```
420 \documentclass[twocolumn,epjc3]{svjour3}
421
422 \usepackage[lang=english]{hep-paper}
423 \usepackage[math]{blindtext}
424
425 \journalname{Journal name}
426
427 \title{Title\thanksref{title}}
428
429 \titlerunning{Short title}
430
431 \subtitle{Subtitle}
432
433 \thankstext{title}{Title thanks}
434
435 \authorrunning{Short form of author list}
436
437 \thankstext{email1}{e-mail: first@email.com}
438 \thankstext{email2}{e-mail: second@email.com}
439
440 \institute{
441   First address \label{address1} \and
442   Second address \label{address2} \and
443   \emph{Present Address:} if needed\label{address3}
444 }
445
446 \date{Received: date / Accepted: date}
447
448 \begin{document}
449
450 \author{
451   First Author\thanksref{email1,address1} \and
452   Second Author\thanksref{email2,address2,address3}
453 }
454
455 \maketitle
456
457 \begin{abstract}
458 \blindtext
459 \end{abstract}
460
```

```
461 \Blinddocument
462
463 \end{document}
```

</testSpringer>

K Readme

<*readme>

```
464 # The 'hep-paper' package
465
466 A 'LaTeX' package for publications in High Energy Physics.
467
468 ## Introduction
469
470 The 'hep-paper' package aims to provide a single style file containing most configuratio
471 Instead of reinventing the wheel by introducing newly created macros 'hep-paper' prefera
472
473 For usual publications it is enough to load additionally to the 'article' class without
474
475     \documentclass{article}
476     \usepackage{hep-paper}
477
478 ## Author
479
480 Jan Hajer
481
482 ## License
483
484 This file may be distributed and/or modified under the conditions of the 'LaTeX' Project
485 The latest version of this license is in 'http://www.latex-project.org/lppl.txt' and ver
```

</readme>

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