

The HEP-PAPER package^{*}

Publications in high energy physics

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Abstract

The HEP-PAPER package is the aggregate publication setup for the HEP package suite. It configures the page geometry, language, fonts, hyperlinks, title data, bibliography, acronyms, references, floats, text helpers, and math fonts by loading the corresponding modular packages with publication-oriented defaults.

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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 are the changes of some L^AT_EX defaults. The paper and font sizes are set to A4 and 11 pt, respectively. Additionally, the paper geometry is adjusted using the GEOMETRY package [2]. Furthermore, text and math fonts are configured with HEP-FONT and HEP-MATH-FONT, text helpers with HEP-TEXT, bibliographies with HEP-BIBLIOGRAPHY, acronyms with HEP-ACRONYM, references and hyperlinks with HEP-REFERENCE, titles with HEP-TITLE, and floats with HEP-FLOAT.

1.1 Options

- paper** The `paper=<format>` option loads the specified paper format. The possible *<formats>* are: `a0`, `a1`, `a2`, `a3`, `a4`, `a5`, `a6`, `b0`, `b1`, `b2`, `b3`, `b4`, `b5`, `b6`, `c0`, `c1`, `c2`, `c3`, `c4`, `c5`, `c6`, `ansia`, `ansib`, `ansic`, `ansid`, `ansie`, `letter`, `executive`, `legal`. The default is `a4`.
- font** The `font=<size>` option loads the specified font size. The possible *<sizes>* are: `8pt`, `9pt`, `10pt`, `11pt`, `12pt`, `14pt`, `17pt`, `20pt`. The default is `11pt`.
- lang** The `lang=<name>` option switches the document language. 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 [3]. The L^AT_EX 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 [4] 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 [5] if *<key>*=`false`.
- glossaries** The `glossaries=false` option deactivates acronyms and the use of the HEP-ACRONYM package [6].
- references** The `references=false` option prevents the CLEVEREF package [7] from being loaded and deactivates further redefinitions of reference macros.

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

1.1.2 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 [8] compatibility mode.
- `jhep` The `jhep` option activates the JHEP [9] compatibility mode.
- `jcap` The `jcap` option activates the JCAP [10] compatibility mode.
- `revtex` The `revtex` option activates the REVTeX [11] compatibility mode.
- `pos` The `pos` option activates the PoS compatibility mode.
- `springer` The `springer` option activates the compatibility mode the `svjour` class [12].

1.1.3 Reactivation

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

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

2 Macros and environments

- `twocolumn` If the global `twocolumn` option is present the page geometry is changed to cover 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 [13].
- `\title` The portable document format (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` `\author[1]{Author one \email{email one}}`
 - `\affiliation` `\affiliation[1]{Affiliation one}`
 - `\author` `\author[2]{Author two \email{email two}}`
 - `\email` `\affiliation[1,2]{Affiliation two}`
- `\preprint` The `\preprint{<number>}` macro places a pre-print number in the upper right corner of the title page.
- `abstract (env.)` The `abstract` environment is adjusted to not start with an indentation.
- `\titlefont` Various title font macros are defined, allowing to change the appearance of the `\maketitle` output.
- `\subtitlefont`
- `\authorfont`
- `\affiliationfont`
- `\preprintfont`

2.2 Text

<code>\inlinelist</code>	The <code>\inlinelist</code> and <code>\enumdescript</code> environments are defined.
<code>\enumdescript</code>	A bold versions SMALL CAPS and a sans serif version of SMALL CAPS is provided.
<code>\textsc</code>	The <code>\underline</code> macro is redefined to allow line-breaks. The <code>\overline</code> macro is extended to also overline text outside of math environments.
<code>\underline</code>	
<code>\overline</code>	If the <code>\parskip</code> option is activated the <code>\useparindent</code> macro switches to the usual <code>\parindent</code> mode, while the <code>\useparskip</code> macro switches to the <code>\parskip</code> mode.
<code>\useparskip</code>	
<code>\useparindent</code>	2.2.1 References and footnotes
<code>\cref</code>	References are extended with the <code>CLEVEREF</code> package [7], which allows to e.g. just type <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 beginning of the footnote text.
<code>\subref</code>	
<code>\footnote</code>	2.2.2 Acronyms
<code>\acronym</code>	The <code>HEP-ACRONYM</code> package [6] is loaded. The <code>\acronym{<*>[<typeset abbreviation>]{<abbreviation>}{<*>}{<definition>}}</code> macro generates the singular <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.
<code>\shortacronym</code>	
<code>\longacronym</code>	

2.3 Math

<code>\mathbf</code>	The <code>HEP-MATH</code> [14] and <code>HEP-MATH-FONT</code> [4] packages are loaded. Bold math, via <code>\mathbf</code> is improved, i.e. ($Ab\Gamma\delta\mathbf{Ab}\Gamma\delta$). Macros switching to <code>\bfseries</code> such as <code>\section{<text>}</code> are ensured to also typeset math in bold. The <code>\text{<text>}</code> macro makes it possible to write text within math mode, i.e. ($Ab\Gamma\delta\mathbf{Ab}\Gamma\delta$). The math sans serif alphabet is redefined to be italic sans serif if the main text is serif and italic serif if the main text is sans serif, i.e. ($Ab\Gamma\delta\mathbf{Ab}\Gamma\delta$). The <code>\mathcal</code> font i.e. ($\mathcal{ABCD}$) is accompanied by the <code>\mathscr</code> font i.e. ($\mathscr{ABCD}$). The <code>\mathbb</code> font is adjusted depending on the <code>\sansserif</code> option i.e. ($\mathbb{A}\mathbb{h}1$). Finally, the <code>\mathfrak</code> font is also available i.e. ($\mathfrak{AaBb12}$).
<code>\mathsf</code>	
<code>\mathscr</code>	
<code>\mathbb</code>	
<code>\mathfrak</code>	The <code>\frac{<number>}{<number>}</code> macro is accompanied by <code>\nicefrac{<number>}{<number>}</code> , <code>\textfrac{<number>}{<number>}</code> , and <code>\flatfrac{<number>}{<number>}</code> leading to $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, and $1/2$. Diagonal matrix <code>\diag</code> and signum <code>\sgn</code> operators are defined.
<code>\nicefrac</code>	
<code>\textfrac</code>	The <code>\mathdef{<name>}[<arguments>]{<code>}</code> macro (re-)defines macros only within math mode without changing the text mode definition.
<code>\diag</code>	
<code>\sgn</code>	
<code>\mathdef</code>	

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

`\d` For longer paper it can be useful to re-number the equation in accordance with the section numbering `\numberwithin{equation}{section}`. In order to further reduce the size of equation counter it can be useful to wrap `align` environments with multiple rows in a `subequations` environment.

`\unit` The correct spacing for units, cf. equation (2.1), is provided by the macro `\unit[⟨value⟩]{⟨unit⟩}` which can also be used in text mode. The macro `\inv[⟨power⟩]{⟨text⟩}` allows to avoid math mode also for inverse units such as 5 fb^{-1} typeset via `\unit[5]{\inv{fb}}`.

`\inv`

Greek letters are adjusted to always be italic and upright in math and text mode, respectively, using the HEP-MATH-FONT [4] package. This allows differentiations like

$$\sigma = 5\text{ fb} , \quad \text{at } 5\sigma \text{ C.L.} , \quad \mu = 5\text{ cm} , \quad l = 5\mu\text{m} . \quad (2.1)$$

Additionally, Greek letters can also be directly typed using Unicode.

`\ev` The HEP-MATH package [14] provides additional macros such as

`\pdv`

`\comm` $\langle\phi\rangle$, $\frac{\partial^3 f}{\partial x \partial y^2}$, $[A, B]$, $\mathcal{O}(x^2)$, $x|_0^\infty$, $\det(M)$. (2.2)

`\order`

`\cancel` The `\cancel{⟨characters⟩}` macro and the `\slashed{⟨character⟩}` macro allow to ~~cancel~~ math and use the Dirac slash notation i.e. $\cancel{\phi}$, respectively.

`\slashed`

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

2.4 Floats

`figure (env.)` 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 [15]. The most useful float placement is usually achieved by placing the float *in front* of the paragraph it is referenced in first.

`table (env.)`

`panels (env.)` 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}[⟨vertical alignment⟩]{⟨width⟩}` 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{⟨width⟩}` macro takes the width of the next sub-float as mandatory argument.

`\panel`

`\graphic` The `\graphic[⟨width⟩]{⟨figure⟩}` macro is defined, which is a wrapper for the `\includegraphics{⟨figure⟩}` macro and takes the figure width as fraction of the `\linewidth` as optional argument (default 1).

`\graphics` If the graphics are located in a sub-folder its path can be indicated by `\graphics{⟨subfolder⟩}`.

2.5 Bibliography

`\bibliography` The BIBLATEX package [16] is loaded for bibliography management. The user has to add the line `\bibliography{⟨my.bib⟩}` to the preamble of the document and `\printbibliography` at the end of the document. The bibliography is generated by BIBER [17]. BIBLATEX is extended by the HEP-BIBLIOGRAPHY package [5] 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

`\printbibliography`

`erratum`

```

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

```

3 Conclusion

The HEP-PAPER package provides a matching selection of preloaded packages and additional macros enabling the user to focus on the content instead of the layout by reducing the amount of manual tasks. The majority of the loaded packages are fairly lightweight, the others can be deactivated with package options.

arxiv-collector `arxiv.org` [18] requires the setup dependent `bb1` files instead of the original `bib` files, which causes trouble if the local `LATEX` version differs from the one used by arXiv. The `ARXIV-COLLECTOR` python script [19] alleviates this problem by collecting all files necessary for publication on arXiv (including figures).

A Options

<*package>

Load the `KVOPTIONS` package [20] and define a `hep` namespace.

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

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

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

font Define a `figures=size` 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 [21]. 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 [16] 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 [6].

```
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 [8] compatibility mode.

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

revtex Provide the **revtex** option for REVTeX [11] compatibility mode.

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

jhep Provide the **jhep** option for JHEP [9] compatibility mode.

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

jcap Provide the **jcap** option for JCAP [10] 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}{\setkeys{hep}{paper=executive}}{}
42 \setkeys{hep}{paper=executive}%
43 }
```

A.5 Set compatibility

Set the `amsart` compatibility options using the `xPATCH` package [22].

```
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, references=false, font=default}
60 \DeclareRobustCommand\boldmath{\@nomath\boldmath\mathversion{bold}}
61 \PassOptionsToPackage{hidelinks}{hyperref}
62 \RequirePackage{hyperref}
63 \fi

```

Set the beamer compatibility options.

```

64 \@ifclassloaded{beamer}{\setkeys{hep}{beamer}}{}
65 \ifhep@beamer
66 \setkeys{hep}{%
67 defaults, title=false, references=false, sansserif, font=default%
68 }
69 \@ifpackageloaded{beamerbasefont}{\usefonttheme{professionalfonts}}{}
70 \setbeamertemplate{navigation symbols}{}
71 \fi

```

Set the revtex compatibility options.

```

72 \@ifclassloaded{revtex4}{\setkeys{hep}{revtex}}{}
73 \@ifclassloaded{revtex4-1}{\setkeys{hep}{revtex}}{}
74 \@ifclassloaded{revtex4-2}{\setkeys{hep}{revtex}}{}
75 \ifhep@revtex
76 \setkeys{hep}{
77 defaults,
78 font=default,
79 title=false,
80 bibliography=false,
81 lang=american,
82 }
83 \RequirePackage{hep-revtex}
84 \fi

```

Define the SISSA conditional.

```

85 \@ifpackageloaded{jheppub}{\setkeys{hep}{jhep}}{}
86 \@ifpackageloaded{jcappub}{\setkeys{hep}{jcap}}{}
87 \newif\ifhep@sisssa
88 \ifhep@jhep\hep@sisstrue
89 \else
90 \ifhep@jcap\hep@sisstrue
91 \else\hep@sissafalse
92 \fi
93 \fi

```

Set the SISSA compatibility options.

```

94 \ifhep@sisssa
95 \setkeys{hep}{defaults, title=false, bibliography=false}
96 \RequirePackage{hep-sissa}
97 \fi
98 \ifhep@jhep
99 \PassOptionsToPackage{\hep@paper paper}{geometry}

```

```

100 \RequirePackage{geometry}
101 \geometry{
102   offset=0in,
103   top=.1\paperheight,
104   textheight=.756\paperheight,
105   textwidth=.72\paperwidth,
106 }
107 \fi

```

B Math

Load the HEP-MATH package [14].

```

108 \ifhep@physics\RequirePackage{hep-math}\fi

```

C Font

Load the HEP-FONT package [23].

```

109 \PassOptionsToPackage{
110   size=\hep@font,
111   sans=\ifhep@serif false\else true\fi,
112   lining=\ifhep@lining true\else false\fi
113 }{hep-font}
114 \RequirePackage{hep-font}

```

C.1 Math fonts

Load the HEP-MATH-FONT package [4].

```

115 \PassOptionsToPackage{symbols=\hep@symbols}{hep-math-font}
116 \RequirePackage{hep-math-font}

```

D Geometry

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

```

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

```

`\useparskip` Load the PARSKIP package [3] if requested and provide two commands switching between the two paragraph modes.

```

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

```

E Text

Load the HEP-TEXT package [24].

```

142 \PassOptionsToPackage{lang=\hep@lang}{hep-text}
143 \RequirePackage{hep-text}

```

F Floats

Adjust the L^AT_EX float placement defaults using the HEP-FLOAT package [15].

```

144 \PassOptionsToPackage{%
145   \ifhep>manualplacement local\else global\fi%
146 }{hep-float}
147 \RequirePackage{hep-float}

```

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

```

148 \newif\ifhep@journal
149 \ifhep@sissa\hep@journaltrue
150 \else\ifhep@revtex\hep@journaltrue
151   \else\ifhep@pos\hep@journaltrue
152     \else\ifhep@springer\hep@journaltrue
153       \else\hep@journalfalse
154     \fi
155   \fi
156 \fi
157 \fi

```

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

```

158 \ifhep@journal

```

```

159 \setlength\abovecaptionskip{\f@size\p@}
160 \setlength\belowcaptionskip{0\p@}
161 \long\def\@makecaption#1#2{%
162   \vskip\abovecaptionskip
163   \sbox\@tempboxa{#1: #2}%
164   \ifdim \wd\@tempboxa >\hsize
165     #1: #2\par
166   \else
167     \global \@minipagefalse
168     \hb@xt@\hsize{\hfil\box\@tempboxa\hfil}%
169   \fi
170   \vskip\belowcaptionskip%
171 }
172 \fi

```

G Title page

Adjust the title page using the HEP-TITLE package [13].

```

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

```

H Bibliography

Check if bibliography management is requested using the PDFTEXCMDS package [26]. And load the HEP-BIBLIOGRAPHY package [5]

```

174 \RequirePackage{pdfdocmds}
175 \ifnum\pdf@strcmp{\hep@bibliography}{false}=0\else
176   \PassOptionsToPackage{style=\hep@bibliography}{hep-bibliography}
177   \RequirePackage{hep-bibliography}
178 \fi

```

I Hyperlinks, Footnotes and References

Load the HEP-REFERENCE package [27].

```

179 \ifhep@references
180 \RequirePackage{hep-reference}

```

End of references conditional

```

181 \fi

```

J Acronyms

Define acronyms if not deactivated. Acronyms are implemented in the HEP-ACRONYM package [6] and must be loaded after the HYPERREF package in section I. Set the abbreviation style.

```

182 \ifhep@glossaries\RequirePackage{hep-acronym}\fi

```

</package>

K SISSA compatibility

<*sisssa>

`\arxiv` Provide the `\arxiv` macro.

```
183 \let\arxiv\arxivnumber
```

`\subtitle` Provide the `\subtitle` macro.

```
184 \newcommand*{\subtitle}[1]{%
185   \let\hep@title\@title%
186   \title{\hep@title: #1}%
187 }
```

`\author` Ensure that the affiliation superscript is not in bold font.

```
188 \renewcommand{\author}[2][]{%
189   \if!#1!%
190     \auth@toks=\expandafter{\the\auth@toks#2\ }%
191   \else%
192     \auth@toks=\expandafter{%
193       \the\auth@toks#2\textsuperscript{\textnormal{\textit{#1}}}%
194     }%
195   \fi%
196 }
```

`\email` Provide the `\email` macro.

```
197 \newcommand*\email[2][]{%
198   \global\emailaddtrue%
199   \ifnum\theemail@counter>0%
200     \global\email@toks=\expandafter{\the\email@toks, \@email{#2}}%
201   \else%
202     \global\email@toks=\expandafter{\the\email@toks\@email{#2}}%
203   \fi%
204   \stepcounter{email@counter}%
205 }
206 \ProvideDocumentCommand{\orcmal}{mm}{\email{#2}}
```

`abstract` (*env.*) Define an `abstract` environment that works within the document using the `ENVIRON` [28] and a new auxiliary file.

```
207 \RequirePackage{environ}
208 \newcommand{\hep@abstract@file}{\jobname.abs}
209 \newwrite\hep@write@abstract
210 \AtBeginDocument{%
211   \RenewEnviron{abstract}{%
212     \immediate\openout\hep@write@abstract=\hep@abstract@file%
```

```

213 \immediate\write\hep@write@abstract{\unexpanded\expandafter{\BODY}}%
214 \immediate\closeout\hep@write@abstract%
215 }%
216 }
217 \IfFileExists{\hep@abstract@file}{%
218 \gdef\@abstract{\input{\hep@abstract@file}}%
219 }{}

```

`\tableofcontents` Disable the `\tableofcontents`, `\listoffigures`, `\listoftables` macros since the `\maketitle` macro takes care of the journal style.

`\listoftables`

```

220 \let\hep@make@title\maketitle
221 \def\maketitle{\hep@make@title\renewcommand*{\tableofcontents}{}
222 \renewcommand*{\listoffigures}{}
223 \renewcommand*{\listoftables}{}

```

Ensure that hyperlinks are colored correctly.

```

224 \AtEndPreamble{
225 \hypersetup{
226 colorlinks=true,
227 linktocpage=true,
228 urlcolor=blue,
229 anchorcolor=blue,
230 citecolor=blue,
231 filecolor=blue,
232 linkcolor=blue,
233 menucolor=blue
234 }
235 }
236 \AtEndPreamble{\@ifpackageloaded{cleveref}{\@cref@nameinlinkfalse}{}
237 \AtEndPreamble{\@ifpackageloaded{glossaries}{\glsdisablehyper}{}
238 \AtEndPreamble{\@ifpackageloaded{foreign}{
239 \renewcommand*{\foreignabbrfont}{}
240 }{}}

```

Adjust the lining style in the bibliography.

```

241 \@ifpackageloaded{nfssect-cfr}{\renewcommand{\bibnumfmt}[1]{\texttt{#1}}{}}

```

</sisso>

L Revtex

<*revtex>

Prevent adjustment of paper size.

```

242 \PassOptionsToPackage{size=default}{hep-font}

```

Provide the `\arxiv` macro.

```

243 \newcommand*\arxiv[1]{\preprint{%
244   \textsc{arXiv}: \href{https://arxiv.org/abs/#1}{\nolinkurl{#1}}}%
245 }}

```

Provide the `\subtitle` macro.

```

246 \newcommand*\subtitle[1]{\let\hep@title\@title\title{\hep@title: #1}}

```

Load the `hyperref` package [29] in order to avoid compilation errors.

```

247 \RequirePackage{hyperref}

```

Allow definition of meta data in the preamble.

```

248 \frontmatter@init
249 \let\frontmatter@init\@empty

```

Redefine the `\author` macro.

```

250 \renewcommand*\author[2][\frontmatter@author{#2}]

```

Redefine the `\@affiliation` macro.

```

251 \renewcommand*\@affiliation[2][\%
252   \endgroup%
253   \let\@AF@join\@affil@join%
254   \@affil@def{#2}%
255 ]%

```

Provide an abstract environment that can be called after `\maketitle` using the `ENVIRON` package [28] and an additional auxiliary file.

```

256 \RequirePackage{environ}
257 \newcommand{\hep@abstract@file}{\jobname.abs}
258 \newwrite\hep@write@abstract
259 % \let\hep@frontmatter@abstractfont\frontmatter@abstractfont
260 % \def\frontmatter@abstractfont{\hep@frontmatter@abstractfont\rmfamily}
261 \let\hep@make@title\maketitle%
262 \def\maketitle{\hep@make@title%
263   \NewEnviron{abstract}{%
264     \immediate\openout\hep@write@abstract=\hep@abstract@file%
265     \immediate\write\hep@write@abstract{\unexpanded\expandafter{\BODY}}}%
266     \immediate\closeout\hep@write@abstract%
267     \let\abstract\@undefined\let\endabstract\@undefined
268   }%
269 }
270 \IfFileExists{\hep@abstract@file}{\AtBeginDocument{%
271   \begin{frontmatter@abstract}%
272     \input{\hep@abstract@file}%
273   \end{frontmatter@abstract}%
274 }}{}

```

Prevent the abstract to move to the second page in preprint mode.

```

275 \RequirePackage{etoolbox}
276 \patchcmd{\frontmatter@abstract@produce}{
277   \vskip200\p@\@plus1fil
278   \penalty-200\relax
279 }{
280   \vskip225\p@\@plus1fil
281 }{}{}

```

Ensure that the hyperlinks are colored correctly using the `softwarexcolor` package [30].

```

282 \RequirePackage{xcolor}
283 \definecolor{linkcolor}{RGB}{46,48,146}
284 \AtEndPreamble{
285   \@ifpackageloaded{hyperref}{
286     \hypersetup{
287       colorlinks=true,
288       linkcolor=linkcolor,
289       citecolor=linkcolor,
290       urlcolor=linkcolor,
291       linktocpage=true
292     }{}{}
293   \AtEndPreamble{\@ifpackageloaded{cleveref}{\@cref@nameinlinkfalse}{}
294   \AtEndPreamble{\@ifpackageloaded{glossaries}{\glsdisablehyper}{}
295   \AtBeginShipout{\hypersetup{pdftitle={\@title}}}

```

Ensure correct formatting of float captions using the `RAGGED2E` package [31].

```

296 \AtBeginDocument{\@ifpackageloaded{caption}{
297   \RequirePackage{ragged2e}
298   \DeclareCaptionFormat{revtex}{\#1\#2\justifying{\#3}}
299   \captionsetup{font=small, format=revtex}
300   \captionsetup[sub]{font=small, format=plain}
301 }{}

```

Fixing the names of figures and tables.

```

302 \AfterEndPreamble{
303   \renewcommand{\figurename}{FIG.}
304   \renewcommand{\tablename}{TABLE}
305 }

```

</revtex>

M Tests

M.1 JHEP

<*testJHEP>

```

306 \documentclass[a4paper, 11pt]{article}
307
308 \usepackage{jheppub}

```

```

309 \usepackage[lang=english]{hep-paper}
310 \usepackage[math]{blindtext}
311
312 \title{Title}
313
314 \author[a]{First author}
315 \affiliation[a]{First affiliation}
316 \email{first@email.com}
317
318 \author[b]{Second author}
319 \affiliation[b]{Second affiliation}
320 \email{second@email.com}
321
322 \arxiv{1234.5678}
323
324 \begin{document}
325
326 \maketitle
327
328 \begin{abstract}
329 \blindtext
330 \end{abstract}
331
332 \Blinddocument
333
334 \end{document}
</testJHEP>

```

M.2 JCAP

```

<*testJCAP>

335 \documentclass[a4paper, 11pt]{article}
336
337 \usepackage{jcapub}
338 \usepackage[lang=english]{hep-paper}
339 \usepackage[math]{blindtext}
340
341 \begin{document}
342
343 \title{Title}
344
345 \emailAdd{first@email.com}
346 \author[a]{First author}
347 \emailAdd{second@email.com}
348 \author[b]{Second author}
349 \affiliation[a]{First affiliation}
350 \affiliation[b]{Second affiliation}
351
352 \abstract{\blindtext}

```

```

353
354 \maketitle
355
356 \Blinddocument
357
358 \end{document}

```

</testJCAP>

M.3 AMSArt

<*testAMSArt>

```

359 \documentclass{amsart}
360
361 \usepackage[lang=english]{hep-paper}
362 \usepackage[math]{blindtext}
363
364 \title{title}
365
366 \author{Author}
367 \address{Address 1}
368 \email{first@email.com}
369 \author{Author 2}
370 \email{second@email.com}
371 \address{Address 2}
372
373 \date{date}
374
375 \begin{document}
376
377 \begin{abstract}
378 \blindtext
379 \end{abstract}
380
381 \maketitle
382
383 \Blinddocument
384
385 \end{document}

```

</testAMSArt>

M.4 Beamer

<*testBeamer>

```

386 \documentclass{beamer}
387
388 \usepackage[lang=english]{hep-paper}
389 \usepackage[math]{blindtext}
390

```

```

391 \title{Title}
392 \subtitle{Subtitle}
393 \author{Author}
394 \institute{Institute}
395 \date{Event}
396
397 \begin{document}
398
399 \frame{\titlepage}
400
401 \begin{frame}{Frame title}
402 \blindtext
403 \end{frame}
404
405 \end{document}

```

</testBeamer>

M.5 PoS

<*testPoS>

```

406 \documentclass{PoS}
407
408 \usepackage[lang=english]{hep-paper}
409 \usepackage[math]{blindtext}
410
411 \title{Title}
412
413 \author{First author \thanks{first@email.com}}
414 \author{
415 \speaker{Second author is speaker}\\
416 First affiliation\\
417 E-mail: \email{second@email.com}
418 }
419 \author{Third author \thanks{\email{third@email.com}}\\
420 Second affiliation}
421 \author{Fourth author\\Third affiliation}
422 \FullConference{Full conference}
423 \ShortTitle{Short title}
424
425 \begin{abstract}
426 \blindtext
427 \end{abstract}
428
429 \begin{document}
430
431 \Blinddocument
432
433 \end{document}

```

</testPoS>

M.6 RevTeX

<*testRevTeX>

```
434 \documentclass[
435   aps,
436   prl,
437   reprint,
438   nofootinbib,
439   nobibnotes,
440   superscriptaddress,
441   preprintnumbers,
442 ]{revtex4-2}
443
444 \usepackage{hep-paper}
445 \usepackage[math]{blindtext}
446
447 \title{Title}
448
449 \author{First author}
450 \email[E-mail me at: ]{first@email.com}
451 \affiliation{First affiliation}
452 \author{Second author}
453 \email{second@email.com}
454 \affiliation{Second affiliation}
455 \affiliation{Third affiliation}
456 \author{Third author}
457 \affiliation{Fourth affiliation}
458
459 \arxiv{1234.5678}
460
461 \begin{document}
462
463 \maketitle
464
465 \begin{abstract}
466 \blindtext
467 \end{abstract}
468
469 \Blinddocument
470
471 \end{document}
```

</testRevTeX>

M.7 Springer

<*testSpringer>

```
472 \documentclass[twocolumn,epjc3]{svjour3}
473
474 \usepackage[lang=english]{hep-paper}
```

```

475 \usepackage[math]{blindtext}
476
477 \journalname{Journal name}
478
479 \title{Title\thanksref{title}}
480
481 \titlerunning{Short title}
482
483 \subtitle{Subtitle}
484
485 \thankstext{title}{Title thanks}
486
487 \authorrunning{Short form of author list}
488
489 \thankstext{email1}{e-mail: first@email.com}
490 \thankstext{email2}{e-mail: second@email.com}
491
492 \institute{
493   First address \label{address1} \and
494   Second address \label{address2} \and
495   \emph{Present Address:} if needed\label{address3}
496 }
497
498 \date{Received: date / Accepted: date}
499
500 \begin{document}
501
502 \author{
503   First Author\thanksref{email1,address1} \and
504   Second Author\thanksref{email2,address2,address3}
505 }
506
507 \maketitle
508
509 \begin{abstract}
510 \blindtext
511 \end{abstract}
512
513 \Blinddocument
514
515 \end{document}
</testSpringer>

```

N Readme

<*readme>

```

516 # The 'hep-paper' package
517

```

```

518 A 'LaTeX' package for publications in High Energy Physics.
519
520 ## Introduction
521
522 The 'hep-paper' package is the aggregate publication setup for the HEP
523 package suite. It configures the page geometry, language, fonts,
524 hyperlinks, title data, bibliography, acronyms, references, floats, text
525 helpers, and math fonts by loading the corresponding modular packages
526 with publication-oriented defaults.
527
528 For usual publications it is enough to load additionally to the 'article'
529 class without optional arguments only the 'hep-paper' package.
530
531 \documentclass{article}
532 \usepackage{hep-paper}
533
534 ## Author
535
536 Jan Hajer
537
538 ## License
539
540 This file may be distributed and/or modified under the conditions of the
541 'LaTeX' Project Public License, either version 1.3c of this license or
542 (at your option) any later version. The latest version of this license is
543 in 'http://www.latex-project.org/lppl.txt' and version 1.3c or later is
544 part of all distributions of LaTeX version 2005/12/01 or later.

```

</readme>

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Change History

v1.0	General: Created the monolithic HEP publication style file.	1	physics macros, and made <code>\mathrm</code> produce upright Greek.	1
v1.1	General: Converted the package to documented LaTeX source.	1	v2.0 General: Split independent logic into the modular hep-font, hep-math-font, hep-text, hep-math, hep-bibliography, hep-acronym, hep-reference, hep-title, and hep-float packages.	1
v1.2	General: Added package options for class, font, language, bibliography, citation, and compatibility controls.	1	v2.1 General: Integrated the new CV, ERC, reference, and talk packages and propagated the v1.1 fixes from the split-out modules.	1
v1.3	General: Added JHEP and JCAP options, RevTeX compatibility, improved acronym macros, math-font fixes, enumdescript and citation support, and moved the biblatex data model into its own file.	1	v2.2 General: Added hep-graphic, hep-plot, and hep-feynman and propagated bibliography, float, font, math, acronym, and documentation updates from the modules.	1
v1.4	General: Added automatic compatibility option selection, PubMed IDs, and bibliography and source-map updates. . .	1	v2.3 General: Propagated the v1.3 module updates, including the CV private and bibliography split, talk logo and citation updates, math-font Greek rework, and math, text, and font fixes. . .	1
v1.5	General: Reduced the number of math alphabets used in sans-serif mode, added subtitle and title options, and switched to standard class options. . . .	1	v2.4 General: Propagated the v1.4 module updates, including TU-engine font setup, title reprint, DOI, and arXiv support, float local and global placement, and starred command definitions.	1
v1.6	General: Added two-column mode and tests.	1	v2.5 General: Raised the LaTeX format requirement, bumped release metadata, and refreshed the aggregate documentation and README for the modular package suite.	1
v1.7	General: Split title, acronym, and bibliography logic into dedicated style files and expanded the title macros. . . .	1		
v1.8	General: Expanded thanks and reference-label handling, refined the title page, reimplemented selected			