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.

Contents

*This document corresponds to HEP-PAPER v2.1.

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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 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.

abstract*

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

```
\author[1]{Author one \email{email one}}
\affiliation[1]{Affiliation one}
\author[2]{Author two \email{email two}}
\affiliation[1,2]{Affiliation two}
```

\preprint The \preprint{⟨*numer*⟩} 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
\subtitlefont
\authorfont
\affiliationfont
\preprintfont
inlinelist
enumdescript
\textsc
\underline
\overline
\useparskip
\useparindent
\cref
\cite
\ref
\eqref
\subref
\footnote
\acronym
\shortacronym
\longacronym

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

2.2 Text

The inlinelist and enumdescript environments are defined.

A bold versions **Small Caps** and a sans serif version of Small Caps is provided.

The \underline macro is redefined to allow line-breaks. The \overline macro is extended to also overline text outside of math environments.

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

2.2.1 References and footnotes

References are extended with the cleveref package [9], which allows to e.g. just type \cref{⟨*key*⟩} in order to write 'figure 1'. Furthermore, the cleveref package allows to reference multiple objects within one \cref{⟨*key1,key2*⟩}.

Citations are adjusted to not start on a new line in order to avoid the repeated use of ~\cite{⟨*key*⟩}.

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

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

2.2.2 Acronyms

The hep-acronym package [8] is loaded. The \acronym⟨*⟩[⟨*typeset abbreviation*⟩] {⟨*abbreviation*⟩}⟨*⟩{⟨*definition*⟩}[⟨*plural definition*⟩] macro generates the singular \⟨*abbreviation*⟩ and plural \⟨*abbreviation*⟩s macros. The first star prevents the addition of an 's' to the abbreviation plural. The second star restores the TeX default of swallowing subsequent white space. The long form is only shown at the first appearance of these macros, later appearances generate the abbreviation with a hyperlink to the long form. The long form is never used in math mode. Capitalization at the beginning of paragraphs and sentences is (mostly) ensured. The \shortacronym and \longacronym macros are drop-in replacements of the \acronym macro showing only the short or long form of their acronym.

2.3 Math

\mathbf
\text
\mathsf
\mathscr
\mathbb
\mathfrak

The HEP-MATH [16] and HEP-MATH-FONT [6] packages are loaded. Bold math, via `\mathbf` is improved, i.e. ($Ab\Gamma\delta\boldsymbol{Ab\Gamma\delta}$). Macros switching to `bfseries` such as `\section{`⟨*text*⟩`}` are ensured to also typeset math in bold. The `\text{`⟨*text*⟩`}` macro makes it possible to write text within math mode, i.e. (Ab$\Gamma\delta$**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. ($\mathsf{Ab\Gamma\delta\boldsymbol{Ab\Gamma\delta}}$). The `\mathcal` font i.e. ($\mathcal{ABCD}$) is accompanied by the `\mathscr` font i.e. ($\mathscr{ABCD}$). The `\mathbb` font is adjusted depending on the `sansserif` option i.e. ($\mathbb{Ah1}$). Finally, the `\mathfrak` font is also available i.e. ($\mathfrak{AaBb12}$).

\nicefrac
\flatfrac
\textfrac

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

\diag
\sgn
\mathdef

The `\mathdef{`⟨*name*⟩`}[`⟨*arguments*⟩`]{`⟨*code*⟩`}` macro (re-)defines macros only within math mode without changing the text mode definition.

\i
\d

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

\numberwithin
subequations

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 the of equation counter it can be useful to wrap `align` environments with multiple rows in a `subequations` environment.

\unit
\inv

The correct spacing for units, cf. equation (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 $5\,\mathrm{fb}^{-1}$ typeset via `\unit[5]{\inv{fb}}`.

Greek letters are adjusted to always be italic and upright in math and text mode, respectively, using the HEP-MATH-FONT [6] package. This allows differentiations like

$$\sigma = 5\,\mathrm{fb}\,, \qquad \text{at } 5\,\sigma \text{ C.L.}\,, \qquad \mu = 5\,\mathrm{cm}\,, \qquad l = 5\,\mu\mathrm{m}\,. \tag{1}$$

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

\ev
\pdv
\comm
\order

The HEP-MATH package [16] provides additional macros such as

$$\ev{\phi}\,, \qquad \pdv{f}{x}{y^2}\,, \qquad \comm{A}{B}\,, \qquad \order{x^2}\,, \qquad \eval{x}_0^\infty\,, \qquad \det(M)\,. \tag{2}$$

\cancel
\slashed

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

\overleftright

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

2.4 Floats

figure (*env.*)
table (*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 [17]. The most useful float placement is usually archived by placing the float *in front* of the paragraph it is referenced in first.

panels (*env.*)
\panel

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.

\graphic
\graphics

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

2.5 Bibliography

\bibliography
\printbibliography

The BIBLATEX package [18] 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 [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.

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.

```
\RequirePackage{kvoptions}
\SetupKeyvalOptions{
  family=hep,
  prefix=hep@
}
```

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

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

`font` Define a `figures=`⟨*size*⟩ option. Make 11 pt the default font size.

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

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

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

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

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

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

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

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

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

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

```
\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.

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

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

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

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

```
\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`.

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

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

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

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

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

A.2 Compatibility

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

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

revtex Provide the `revtex` option for REVTEX [13] compatibility mode.

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

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

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

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

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

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

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

springer Provide the springer option for Springer compatibility mode.

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

amsart Provide the amsart option for AMS article compatibility mode.

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

A.3 Reactivation

eqnarray Provide the eqnarray option for reactivating the eqnarray environment.

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

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

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

A.4 Process options

```
\ProcessKeyvalOptions*
```

Read the class options regarding font and paper size.

```
\def\hep@get@class#1.cls#2\relax{\def\hep@class{#1}}
\def\hep@getclass{\expandafter\hep@get@class\@filelist\relax}
\hep@getclass
\@ifclasswith{\hep@class}{10pt}{\setkeys{hep}{font=10pt}}{}
\@ifclasswith{\hep@class}{12pt}{\setkeys{hep}{font=12pt}}{}
\@ifclasswith{\hep@class}{a5paper}{\setkeys{hep}{paper=a5}}{}
\@ifclasswith{\hep@class}{b5paper}{\setkeys{hep}{paper=b5}}{}
\@ifclasswith{\hep@class}{letterpaper}{\setkeys{hep}{paper=letter}}{}
\@ifclasswith{\hep@class}{legalpaper}{\setkeys{hep}{paper=legal}}{}
\@ifclasswith{\hep@class}{executivepaper}{%
  \setkeys{hep}{paper=executive}%
}{}
```

A.5 Set compatibility

Set the amsart compatibility options using the XPATCH package [24].

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

Set the springer compatibility options.

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

```
\@ifclassloaded{svjour3}{\setkeys{hep}{springer}}{}
\ifhep@springer
  \setkeys{hep}{defaults, title=false}
  \let\cl@chapter\undefined
\fi
```

Set the pos compatibility options.

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

Set the beamer compatibility options.

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

Set the revtex compatibility options.

```
\@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.

```
\@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.

```
\ifhep@sissa
  \setkeys{hep}{defaults, 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}
  \AtBeginDocument{\renewcommand{\foreignabbrfont}{}}
\fi
\ifhep@jhep
  \hoffset 0in
  \voffset 0in
  \RequirePackage{geometry}
  \AtBeginDocument{\newgeometry{
    textheight=.757\paperheight,
    textwidth=.72\paperwidth,
  }}
\fi
```

B Font

Load the HEP-FONT package [3].

```
\PassOptionsToPackage{
  size=\hep@font,
  sans=\ifhep@serif false\else true\fi,
  lining=\ifhep@lining true\else false\fi
}{hep-font}
\RequirePackage{hep-font}
```

B.1 Math fonts

Load the HEP-MATH-FONT package [6].

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

C Geometry

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

```
\ifhep@defaults\else
  \RequirePackage{geometry}
  \geometry{\hep@paper paper, includeheadfoot}
  \if@twocolumn
    \geometry{hscale=.85, vscale=.925, vmarginratio=1:1}
    \geometry{headsep=2ex, footskip=6ex}
    \setlength{\columnsep}{1.1em}
  \else
    \geometry{hscale=.75, vscale=.8, vmarginratio=3:4}
  \fi
\fi
```

\useparskip
\useparindent

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

```
\ifhep@parindent\else
\RequirePackage{parskip}
\newcommand{\useparskip}{%
  \setlength{\parskip}{.5\baselineskip plus 2pt}%
  \setlength{\parindent}{0pt}%
}
\newcommand{\useparindent}{%
  \setlength{\parskip}{0pt}%
  \setlength{\parindent}{15pt}%
  \if@twocolumn\setlength\parindent{1em}
  \else\setlength\parindent{1.5em}
  \fi
}
\fi
```

D Text

Load the HEP-TEXT package [25].

```
\PassOptionsToPackage{lang=\hep@lang}{hep-text}
\RequirePackage{hep-text}
```

E Math

Load the HEP-MATH package [16].

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

F Floats

Adjust the LaTeX float placement defaults using the HEP-FLOAT package [17].

```
\PassOptionsToPackage{
  manualplacement=\ifhep@manualplacement true\else false \fi
}{hep-float}
\RequirePackage{hep-float}
```

\ifhep@journal

Define a new journal conditional.

```
\newif\ifhep@journal
\ifhep@sissa\hep@journaltrue
\else\ifhep@revtex\hep@journaltrue
  \else\ifhep@pos\hep@journaltrue
    \else\ifhep@springer\hep@journaltrue
      \else\hep@journalfalse
```

```
      \fi
    \fi
  \fi
\fi
```

Prevent the CAPTION package [26] 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
```

Readjust the document captions to look like the original revtex captions using the RAGGED2E package [27].

```
\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
```

G Title page

Adjust the title page using the HEP-TITLE package [15].

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

H Bibliography

Check if bibliography management is requested using the PDFTEXCMDS package [28]. And load the HEP-BIBLIOGRAPHY package [7]

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

```
  \PassOptionsToPackage{style=\hep@bibliography}{hep-bibliography}
  \RequirePackage{hep-bibliography}
\fi
```

I Hyperlinks, Footnotes and References

Load the HEP-REFERENCE package [29].

```
\ifhep@references
\RequirePackage{hep-reference}
```

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

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

End of references conditional

```
\fi
```

J 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 I. Set the abbreviation style.

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

</package>

K Tests

K.1 JHEP

<*testJHEP>

```
\documentclass[a4paper, 11pt]{article}

\usepackage{jheppub}
\usepackage[lang=english]{hep-paper}
\usepackage[math]{blindtext}

\begin{document}

\title{Title}

\emailAdd{first@email.com}
\author[a]{First author}
\emailAdd{second@email.com}
\author[b]{Second author}
\affiliation[a]{First affiliation}
\affiliation[b]{Second affiliation}

\abstract{\blindtext}

\maketitle

\Blinddocument

\end{document}
```

</testJHEP>

K.2 JCAP

<*testJCAP>

```
\documentclass[a4paper, 11pt]{article}

\usepackage{jcappub}
\usepackage[lang=english]{hep-paper}
\usepackage[math]{blindtext}

\begin{document}

\title{Title}

\emailAdd{first@email.com}
\author[a]{First author}
\emailAdd{second@email.com}
\author[b]{Second author}
\affiliation[a]{First affiliation}
\affiliation[b]{Second affiliation}

\abstract{\blindtext}

\maketitle
```

```
242
243 \Blinddocument
244
245 \end{document}
```

</testJCAP>

K.3 AMSArt

<*testAMSArt>

```
246 \documentclass{amsart}
247
248 \usepackage[lang=english]{hep-paper}
249 \usepackage[math]{blindtext}
250
251 \title{title}
252
253 \author{Author}
254 \address{Address 1}
255 \email{first@email.com}
256 \author{Author 2}
257 \email{second@email.com}
258 \address{Address 2}
259
260 \date{date}
261
262 \begin{document}
263
264 \begin{abstract}
265 \blindtext
266 \end{abstract}
267
268 \maketitle
269
270 \Blinddocument
271
272 \end{document}
```

</testAMSArt>

K.4 Beamer

<*testBeamer>

```
273 \documentclass{beamer}
274
275 \usepackage[lang=english]{hep-paper}
276 \usepackage[math]{blindtext}
277
278 \title{Title}
```

```
\subtitle{Subtitle}
\author{Author}
\institute{Institute}
\date{Event}

\begin{document}

\frame{\titlepage}

\begin{frame}{Frame title}
\blindtext
\end{frame}

\end{document}
```

</testBeamer>

K.5 PoS

<*testPoS>

```
\documentclass{PoS}

\usepackage[lang=english,title=false]{hep-paper}
\usepackage[math]{blindtext}

\title{Title}

\author{First author \thanks{first@email.com}}
\author{
\speaker{Second author is speaker}\\
First affiliation\\
E-mail: \email{second@email.com}
}
\author{Third author \thanks{\email{third@email.com}}\\Second affiliation}
\author{Fourth author\\Third affiliation}
\FullConference{Full conference}
\ShortTitle{Short title}

\begin{abstract}
\blindtext
\end{abstract}

\begin{document}

\Blinddocument

\end{document}
```

</testPoS>

K.6 RevTeX

<*testRevTeX>

```
\documentclass[
 aps,
 prl,
 reprint,
 nofootinbib,
 nobibnotes,
 superscriptaddress,
 preprintnumbers,
]{revtex4-2}

\usepackage{hep-paper}
\usepackage[math]{blindtext}

\begin{document}

\title{Title}

\author{First author}
\email[E-mail me at: ]{first@email.com}
\affiliation{First affiliation}
\author{Second author}
\email{second@email.com}
\affiliation{Second affiliation}
\affiliation{Third affiliation}
\author{Third author}
\affiliation{Fourth affiliation}

\begin{abstract}
\blindtext
\end{abstract}

\maketitle

\Blinddocument

\end{document}
```

</testRevTeX>

K.7 Springer

<*testSpringer>

```
\documentclass[twocolumn,epjc3]{svjour3}

\usepackage[lang=english]{hep-paper}
\usepackage[math]{blindtext}
```

```
360
361 \journalname{Journal name}
362
363 \title{Title\thanksref{title}}
364
365 \titlerunning{Short title}
366
367 \subtitle{Subtitle}
368
369 \thankstext{title}{Title thanks}
370
371 \authorrunning{Short form of author list}
372
373 \thankstext{email1}{e-mail: first@email.com}
374 \thankstext{email2}{e-mail: second@email.com}
375
376 \institute{
377   First address \label{address1} \and
378   Second address \label{address2} \and
379   \emph{Present Address:} if needed\label{address3}
380 }
381
382 \date{Received: date / Accepted: date}
383
384 \begin{document}
385
386 \author{
387   First Author\thanksref{email1,address1} \and
388   Second Author\thanksref{email2,address2,address3}
389 }
390
391 \maketitle
392
393 \begin{abstract}
394 \blindtext
395 \end{abstract}
396
397 \Blinddocument
398
399 \end{document}
```

</testSpringer>

L Readme

<*readme>

```
400 # The ‘hep-paper‘ package
401
402 A ‘LaTeX‘ package for publications in High Energy Physics.
```

```
403
404 ## Introduction
405
406 The ‘hep-paper‘ package aims to provide a single style file containing most configuratio
407 Instead of reinventing the wheel by introducing newly created macros ‘hep-paper‘ prefera
408
409 For usual publications it is enough to load additionally to the ‘article‘ class without
410
411     \documentclass{article}
412     \usepackage{hep-paper}
413
414 ## Author
415
416 Jan Hajer
417
418 ## License
419
420 This file may be distributed and/or modified under the conditions of the ‘LaTeX‘ Project
421 The latest version of this license is in ‘http://www.latex-project.org/lppl.txt‘ and ver
```

</readme>

References

[1] J. Hajer. ‘The hep-paper package: Publications in high energy physics’ (2019). CTAN: hep-paper. DOI: 10.5281/zenodo.3606436. GitHub: janhajer/hep-paper.

[2] D. Carlisle and H. Umeki. ‘The geometry package: Flexible and complete interface to document dimensions’ (1996). CTAN: geometry. GitHub: davidcarlisle/geometry.

[3] J. Hajer. ‘The hep-font package: Latin modern extended by computer modern’ (2021). CTAN: hep-font. DOI: 10.5281/zenodo.3606436. GitHub: janhajer/hep-paper.

[4] *LaTeX3 Project*. ‘Hypertext marks in LaTeX: a manual for hyperref: Extensive support for hypertext in LaTeX’ (1995). CTAN: hyperref. GitHub: latex3/hyperref.

[5] R. Fairbairns, F. Mittelbach, and H. Partl. ‘The parskip package: Layout with zero \parindent, non-zero \parskip’ (1989). CTAN: parskip. GitHub: FrankMittelbach/fmitex.

[6] J. Hajer. ‘The hep-math-font package: Extended Greek and sans serif math’ (2021). CTAN: hep-math-font. DOI: 10.5281/zenodo.3606436. GitHub: janhajer/hep-paper.

[7] J. Hajer. ‘The hep-bibliography package: Bibliographies for high energy physics’ (2021). CTAN: hep-bibliography. DOI: 10.5281/zenodo.3606436. GitHub: janhajer/hep-paper.

[8] J. Hajer. 'The hep-acronym package: An acronym extension for glossaries' (2021). CTAN: hep-acronym. DOI: 10.5281/zenodo.3606436. GitHub: janhajer/hep-paper.
[9] T. Cubitt. 'The cleveref package: Intelligent cross-referencing' (2006). CTAN: cleveref. URL: dr-qubit.org/cleveref.
[10] T. Tantau, J. Wright, and V. Miletić. 'The beamer class: A LaTeX class for producing presentations and slides' (2003). CTAN: beamer. GitHub: josephwright/beamer.
[11] *SISSA Medialab.* 'The JHEP package' (1997). URL: jhep.sissa.it/jhep/help/JHEP_TeXclass.jsp.
[12] *SISSA Medialab.* 'The JCAP package' (2002). URL: jcap.sissa.it/jcap/help/JCAP_TeXclass.jsp.
[13] *American Physical Society.* 'The REVTeX class: Styles for various Physics Journals' (1999). CTAN: revtex. URL: journals.aps.org/revtex.
[14] *Springer Verlag.* 'The svjour package: Macros for Springer journals' (1997). CTAN: springer.
[15] J. Hajer. 'The hep-title package: Extensions for the title page' (2021). CTAN: hep-title. DOI: 10.5281/zenodo.3606436. GitHub: janhajer/hep-paper.
[16] J. Hajer. 'The hep-math package: Extended math macros' (2021). CTAN: hep-math. DOI: 10.5281/zenodo.3606436. GitHub: janhajer/hep-paper.
[17] J. Hajer. 'The hep-float package: Convenience package for float placement' (2021). CTAN: hep-float. DOI: 10.5281/zenodo.3606436. GitHub: janhajer/hep-paper.
[18] P. Lehman, J. Wright, A. Boruvka, and P. Kime. 'The biblatex Package: Sophisticated Bibliographies in LaTeX' (2006). CTAN: biblatex. GitHub: plk/biblatex.
[19] F. Charette and P. Kime. 'biber: Backend processor for BibLaTeX' (2009). GitHub: plk/biber. SourceForge: biblatex-biber.
[20] *arXiv Team.* 'arXiv: free distribution service and an open archive for scholarly articles' (1991). URL: arxiv.org.
[21] D. Sutherland. 'arxiv-collector: A little Python script to collect LaTeX sources for upload to the arXiv' (2018). GitHub: dougalsutherland/arxiv-collector.
[22] H. Oberdiek. 'The kvoptions package: Key value format for package options' (2004). CTAN: kvoptions. GitHub: ho-tex/kvoptions.
[23] J. Braams, J. Bezos, and at al. 'Babel Localization and internationalization: Multilingual support for Plain TeX or LaTeX' (1989). CTAN: babel. GitHub: latex3/babel.
[24] E. Gregorio. 'The xpatch package: Extending etoolbox patching commands' (2012). CTAN: xpatch.
[25] J. Hajer. 'The hep-text package: List and text extensions' (2021). CTAN: hep-text. DOI: 10.5281/zenodo.3606436. GitHub: janhajer/hep-paper.
[26] A. Sommerfeldt. 'The caption package: Customising captions in floating environments' (1994). CTAN: caption. GitLab: axelsommerfeldt/caption.

[27] M. Schröder. 'The ragged2e-package: Alternative versions of "ragged"-type commands' (1996). CTAN: ragged2e. GitLab: hagenbuch/ragged2e.

[28] H. Oberdiek. 'The pdftexcmds package: LuaTeX support for pdfTeX utility functions' (2007). CTAN: pdftexcmds.

[29] J. Hajer. 'The hep-reference package: Selection of reference improvements' (2021). CTAN: hep-reference. DOI: 10.5281/zenodo.3606436. GitHub: janhajer/hep-paper.