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 v2.4.

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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`.

`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] 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 [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` `abstract*` 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`

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

2.2 Text

inlinelist The `inlinelist` and `enumdescript` environments are defined.

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

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

\underline

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

\useparskip

\useparindent

2.2.1 References and footnotes

\cref 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*⟩`}`.

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

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

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

\subref

\footnote

2.2.2 Acronyms

\acronym The hep-acronym package [8] is loaded. The `\acronym`⟨*⟩`[`⟨*typeset abbreviation*⟩`]{`⟨*abbreviation*⟩`}`⟨*⟩`{`⟨*definition*⟩`}[`⟨*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.

\shortacronym

\longacronym

2.3 Math

\mathbf The hep-math [16] and hep-math-font [6] packages are loaded. Bold math, via `\mathbf` is improved, i.e. ($AbI\gamma\delta$ $\boldsymbol{AbI\gamma\delta}$). 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. (AbIγδ$\mathbf{AbI\gamma\delta}$). 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. ($\mathit{AbI\gamma\delta}$ $\boldsymbol{\mathit{AbI\gamma\delta}}$). 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. ($\mathfrak{Aa}\mathfrak{Bb12}$).

\text

\mathsf

\mathscr

\mathbb

\mathfrak

The `\frac{`⟨*number*⟩`}{`⟨*number*⟩`}` macro is accompanied by `\nicefrac{`⟨*number*⟩`}{`⟨*number*⟩`}`, `\textfrac{`⟨*number*⟩`}{`⟨*number*⟩`}`, and `\flatfrac{`⟨*number*⟩`}{`⟨*number*⟩`}` leading to $\frac{1}{2}$, $1/2$, $^1/_2$, and 1/2. Diagonal matrix `\diag` and signum `\sgn` operators are defined.

\nicefrac

\flatfrac

\textfrac

\diag

\sgn

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

\mathdef

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

\numberwithin

subequations

\unit 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}}`.

\inv

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

\pdv

\comm

\order

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

\cancel The `\cancel{`⟨*characters*⟩`}` macro and the `\slashed {`⟨*character*⟩`}` macro allow to $\cancel{\text{cancel}}$ math and use the Dirac slash notation i.e. $\not{\partial}$, respectively.

\slashed

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

\overleftright

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 [17]. The most useful float placement is usually archived 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). If the graphics are located in a sub-folder its path can be indicated by `\graphics{`⟨*subfolder*⟩`}`.

\graphics

2.5 Bibliography

\bibliography 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

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

Set the `beamer` compatibility options.

```
\@ifclassloaded{beamer}{\setkeys{hep}{beamer}}{}
\ifhep@beamer
  \setkeys{hep}{%
    defaults, title=false, references=false, sansserif, font=default%
  }
  \@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,
    font=default,
    title=false,
    bibliography=false,
    lang=american,
  }
  \RequirePackage{hep-revtex}
\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}
  \RequirePackage{hep-sissa}
\fi
\ifhep@jhep
    \PassOptionsToPackage{\hep@paper paper}{geometry}
```

```
    \RequirePackage{geometry}
    \geometry{
      offset=0in,
      top=.1\paperheight,
      textheight=.756\paperheight,
      textwidth=.72\paperwidth,
    }
\fi
```

B Math

Load the HEP-MATH package [16].

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

C 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}
```

C.1 Math fonts

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

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

```
\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
```

E Text

Load the HEP-TEXT package [25].

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

F Floats

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

```
\PassOptionsToPackage{%
  \ifhep@manualplacement local\else global\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
```

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 [27]. 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 [28].

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

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 section I. Set the abbreviation style.

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

</package>

K SISSA compatibility

<*sissa>

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

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

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

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

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

```
\renewcommand{\author}[2][]{%
  \if!#1!%
    \auth@toks=\expandafter{\the\auth@toks#2\ }%
  \else%
    \auth@toks=\expandafter{%
      \the\auth@toks#2\textsuperscript{\textnormal{\textit{#1}}}\
    }%
  \fi%
}
```

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

```
\newcommand*\email[2][]{%
  \global\emailaddtrue%
  \ifnum\theemail@counter>0%
    \global\email@toks=\expandafter{\the\email@toks, \@email{#2}}%
  \else%
    \global\email@toks=\expandafter{\the\email@toks\@email{#2}}%
  \fi%
  \stepcounter{email@counter}%
}
```

`abstract` (*env.*) Define an `abstract` environment that works within the document using the ENVIRON [29] and a new auxiliary file.

```
\RequirePackage{environ}
\newcommand{\hep@abstract@file}{\jobname.abs}
\newwrite\hep@write@abstract
\AtBeginDocument{%
  \RenewEnviron{abstract}{%
    \immediate\openout\hep@write@abstract=\hep@abstract@file%
    \immediate\write\hep@write@abstract{\unexpanded\expandafter{\BODY}}%
    \immediate\closeout\hep@write@abstract%
  }%
}
```

```
\IfFileExists{\hep@abstract@file}{%
  \gdef\@abstract{\input{\hep@abstract@file}}%
}{}
```

`\tableofcontents` `\listoffigures` `\listoftables`

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

```
\let\hep@make@title\maketitle
\def\maketitle{\hep@make@title\renewcommand*{\tableofcontents}{}}
\renewcommand*{\listoffigures}{}
\renewcommand*{\listoftables}{}
```

Ensure that hyperlinks are colored correctly.

```
\AtEndPreamble{
  \hypersetup{
    colorlinks=true,
    linktocpage=true
    pdfproducer=medialab,
    pdfa=true,
    urlcolor=blue,
    anchorcolor=blue,
    citecolor=blue,
    filecolor=blue,
    linkcolor=blue,
    menucolor=blue,
    pagecolor=blue
  }
}
\AtEndPreamble{\@ifpackageloaded{cleveref}{\@cref@nameinlinkfalse}{}}
\AtEndPreamble{\@ifpackageloaded{glossaries}{\glsdisablehyper}{}}
\AtEndPreamble{\@ifpackageloaded{foreign}{
  \renewcommand*{\foreignabbrfont}{}
}{}}
```

Adjust the lining style in the bibliography.

```
\@ifpackageloaded{nfssext-cfr}{\renewcommand{\bibnumfmt}[1]{[\textt{#1}]}}{}
```

</sissa>

L Revtex

<*revtex>

Prevent adjustment of paper size.

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

Provide the `\arxiv` macro.

```
\newcommand*\arxiv[1]{\preprint{%
```

```
    \textsc{arXiv}: \href{https://arxiv.org/abs/#1}{\nolinkurl{#1}}%
}}
```

Provide the `\subtitle` macro.

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

Load the `hyperref` package [4] in order to avoid compilation errors.

```
\RequirePackage{hyperref}
```

Allow definition of meta data in the preamble.

```
\frontmatter@init
\let\frontmatter@init\@empty
```

Redefine the `\author` macro.

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

Redefine the `\@affiliation` macro.

```
\renewcommand*\@affiliation[2][]{%
  \endgroup%
  \let\@AF@join\@affil@join%
  \@affil@def{#2}%
}%
```

Provide an abstract environment that can be called after `\maketitle` using the ENVIRON package [29] and an additional auxiliary file.

```
\RequirePackage{environ}
\newcommand{\hep@abstract@file}{\jobname.abs}
\newwrite\hep@write@abstract
% \let\hep@frontmatter@abstractfont\frontmatter@abstractfont
% \def\frontmatter@abstractfont{\hep@frontmatter@abstractfont\rmfamily}
\let\hep@make@title\maketitle%
\def\maketitle{\hep@make@title%
  \NewEnviron{abstract}{%
    \immediate\openout\hep@write@abstract=\hep@abstract@file%
    \immediate\write\hep@write@abstract{\unexpanded\expandafter{\BODY}}%
    \immediate\closeout\hep@write@abstract%
    \let\abstract\@undefined\let\endabstract\@undefined
  }%
}
\IfFileExists{\hep@abstract@file}{\AtBeginDocument{%
  \begin{frontmatter@abstract}%
    \input{\hep@abstract@file}%
  \end{frontmatter@abstract}%
}}{}
```

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

```
\RequirePackage{etoolbox}
```

```
\patchcmd{\frontmatter@abstract@produce}{
  \vskip200\p@\@plus1fil
  \penalty-200\relax
}{
  \vskip225\p@\@plus1fil
}{}{}
```

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

```
\RequirePackage{xcolor}
\definecolor{linkcolor}{RGB}{46,48,146}
\AtEndPreamble{
\@ifpackageloaded{hyperref}{
\hypersetup{
  colorlinks=true,
  linkcolor=linkcolor,
  citecolor=linkcolor,
  urlcolor=linkcolor,
  linktocpage=true
}}{}}
\AtEndPreamble{\@ifpackageloaded{cleveref}{\@cref@nameinlinkfalse}{}}
\AtEndPreamble{\@ifpackageloaded{glossaries}{\glsdisablehyper}{}}
\AtBeginShipout{\hypersetup{pdftitle={\@title}}}
```

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

```
\AtBeginDocument{\@ifpackageloaded{caption}{
  \RequirePackage{ragged2e}
  \DeclareCaptionFormat{revtex}{#1#2\justifying{#3}}
  \captionsetup{font=small, format=revtex}
  \captionsetup[sub]{font=small, format=plain}
}{}}
```

Fixing the names of figures and tables.

```
\AfterEndPreamble{
  \renewcommand{\figurename}{FIG.}
  \renewcommand{\tablename}{TABLE}
}
```

</revtex>

M Tests

M.1 JHEP

<*testJHEP>

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

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

```
\usepackage[math]{blindtext}

\title{Title}

\author[a]{First author}
\affiliation[a]{First affiliation}
\email{first@email.com}

\author[b]{Second author}
\affiliation[b]{Second affiliation}
\email{second@email.com}

\arxiv{1234.5678}

\begin{document}

\maketitle

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

\Blinddocument

\end{document}
```

</testJHEP>

M.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

\Blinddocument

\end{document}
```

</testJCAP>

M.3 AMSArt

<*testAMSArt>

```
\documentclass{amsart}

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

\title{title}

\author{Author}
\address{Address 1}
\email{first@email.com}
\author{Author 2}
\email{second@email.com}
\address{Address 2}

\date{date}

\begin{document}

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

\maketitle

\Blinddocument

\end{document}
```

</testAMSArt>

M.4 Beamer

<*testBeamer>

```
\documentclass{beamer}

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

\title{Title}
```

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

\begin{document}

\frame{\titlepage}

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

\end{document}
```

</testBeamer>

M.5 PoS

<*testPoS>

```
\documentclass{PoS}

\usepackage[lang=english]{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>

M.6 RevTeX

<*testRevTeX>

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

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

\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}

\arxiv{1234.5678}

\begin{document}

\maketitle

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

\Blinddocument

\end{document}
```

</testRevTeX>

M.7 Springer

<*testSpringer>

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

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

```
\usepackage[math]{blindtext}

\journalname{Journal name}

\title{Title\thanksref{title}}

\titlerunning{Short title}

\subtitle{Subtitle}

\thankstext{title}{Title thanks}

\authorrunning{Short form of author list}

\thankstext{email1}{e-mail: first@email.com}
\thankstext{email2}{e-mail: second@email.com}

\institute{
  First address \label{address1} \and
  Second address \label{address2} \and
  \emph{Present Address:} if needed\label{address3}
}

\date{Received: date / Accepted: date}

\begin{document}

\author{
  First Author\thanksref{email1,address1} \and
  Second Author\thanksref{email2,address2,address3}
}

\maketitle

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

\Blinddocument

\end{document}
```

</testSpringer>

N Readme

<*readme>

```
# The ‘hep-paper‘ package

A ‘LaTeX‘ package for publications in High Energy Physics.
```

```
521
522 ## Introduction
523
524 The ‘hep-paper‘ package aims to provide a single style file containing
525 most configurations and macros necessary to write appealing publications
526 in High Energy Physics. Instead of reinventing the wheel by introducing
527 newly created macros ‘hep-paper‘ preferably loads third party packages as
528 long as they are lightweight enough.
529
530 For usual publications it is enough to load additionally to the ‘article‘
531 class without optional arguments only the ‘hep-paper‘ package.
532
533     \documentclass{article}
534     \usepackage{hep-paper}
535
536 ## Author
537
538 Jan Hajer
539
540 ## License
541
542 This file may be distributed and/or modified under the conditions of the
543 ‘LaTeX‘ Project Public License, either version 1.3c of this license or
544 (at your option) any later version. The latest version of this license is
545 in ‘http://www.latex-project.org/lppl.txt‘ and version 1.3c or later is
546 part of all distributions of LaTeX version 2005/12/01 or later.
```

</readme>

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