The **HEP-BIBLIOGRAPHY** package

Bibliographies for high energy physics

Jan Hajer†

2023/07/01

Abstract

The **HEP-BIBLIOGRAPHY** package extends the **biblatex** package with some functionality mostly useful for high energy physics. In particular it makes full use of all **bibtex** fields provided by **inspirehep.net**.

The package can be loaded via \texttt{\usepackage{hep-bibliography}}.

The **biblatex** package [1] is loaded for bibliography management. The user has to add the line \texttt{\bibliography{my.bib}} to the preamble of the document and \texttt{\printbibliography} at the end of the document. The bibliography is generated by **Biber** [2]. **biblatex** is extended 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, **ctan.org**, **github.com**, **gitlab.com**, **bitbucket.org**, **launchpad.net**, **sourceforge.net**, and **hepforge.org** are valid **eprinttype**s. Errata can be included using the **related** feature.

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

\section*{A Implementation}

Load the **kvoptions** package [3] and define a **hepbib** namespace.

\begin{verbatim}
\RequirePackage{kvoptions}
\SetupKeyvalOptions{
  family=hepbib,
  prefix=hepbib@}
\end{verbatim}

**bibliography** Provide the **style** option for passing a **style** string to the **biblatex** package [1] or disabling the automatic loading of **biblatex**.

\begin{verbatim}
\bibliography{hep-bibliography}
\end{verbatim}

\begin{verbatim}
\printbibliography
\end{verbatim}

\begin{verbatim}
\printbibliography{⟨my.bib⟩}
\end{verbatim}

\begin{verbatim}
\bibliography{⟨my.bib⟩}
\end{verbatim}

---

*This document corresponds to **HEP-BIBLIOGRAPHY v1.2.**

†jan.hajer@tecnico.ulisboa.pt
\DeclareStringOption[numeric-comp]{style}
\ProcessKeyvalOptions*

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

\providecommand{\online}[2]{\texttt{#2}}% \providecommand{\hep@email}[1]{\online{mailto:#1}{#1}} \providecommand{\email}{\hep@email} \AtBeginDocument{\ifpackageloaded{hyperref}{\renewcommand{\online}[2]{\href{#1}{\nolinkurl{#2}}}}{}}

\bibliography Load the \texttt{biblatex} package \cite{biblatex} with the datamodel defined in appendix B.

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

\bibliography Provision the \texttt{\DeclareSortingTemplate} macro for older \texttt{biblatex} installations. Define a new sorting template that sorts only multy key \cite entries according to their date and leaves the rest of the bibliography entries in the order they appear in the text.
Use the new sorting scheme and abbreviate all first names.

\ExecuteBibliographyOptions{
  sorting=hep-bibliography,
  safeinputenc,
  giveninit=true,
  maxbibnames=7,
}

Redefine the pages filed such that leading zeros are stripped from the page numbers.

\newcommand\hep@strip@zero[1]{\expandafter\hep@strip@zero@helper#1}
\newcommand\hep@strip@zero@helper[1]{\ifx0#1\expandafter\hep@strip@zero@helper\else#1\fi}
\DeclareFieldFormat{pages}{\
  \mkpageprefix{bookpagination}[\mknormrange[\hep@strip@zero]{#1}]
}

Define an internal bibhypertarget.

\DeclareFieldFormat{bibhypertarget}{\bibhypertarget{\thefield{entrykey}:\the\value{instcount}}{#1}}

Redefine the citation command to set the bibhypertarget and call the cite:save macro.

\renewbibmacro*{cite:comp}{\printtext[bibhypertarget]{\stepcounter{cbx@tempcntb}\
  \iffieldundef{shorthand}{\
    \ifbool{bbx:subentry}{\
      \iffieldundef{entrysetcount}{\usebibmacro{cite:comp:comp}}{\usebibmacro{cite:comp:inset}}\}
    \usebibmacro{cite:comp:shand}}\}
  }{\usebibmacro{cite:comp:comp}}\}

\newbibmacro*{cite:save}{\ifcsedef{cbx@\thefield{entrykey}}{\
  \csxdef{cbx@\thefield{entrykey}}{\\the\value{instcount}}\}
}

Define the cite:safe macro

\newbibmacro*{cite:safe}{\ifcsundef{cbx@\thefield{entrykey}}{\
  \csxdef{cbx@\thefield{entrykey}}{\\the\value{instcount}}\}
}

Link from the bibliography to the first cite.

\newbibmacro{cbx:linktofirstcite}[1]{\ifcsdef{cbx@\thefield{entrykey}}{\}}
Ensure table style numbers in the bibliography labels.

Deactivate counting during caption measurement.

Shrink the bibliography in two column mode.

translationof Redefine the translationof string to fit better to documents without an original title.

erratum Add new bibliography string 'Erratum' for the use in the relatedtype field.

Activate the Oxford comma when using british and separate title and subtitle with a colon.

A.1 Soucremap

Define regular expressions in order to deal with inconsistent journal title and volume naming as well as uniform resource locator (URL) protocols and the PMCID.
\newcommand{\hep@reg@exp@url}{\regexp\{\A(ht|f)tp(s)?:\/*\/*/\}}
\newcommand{\hep@reg@exp@pmc}{\regexp\{\A(PMC)?\}}

\DeclareSourcemap
Use the \DeclareSourcemap feature.

\DeclareSourcemap{%
\maps[datatype=bibtex, overwrite=true]{%
  \map{%
    \step[fieldset=collaboration, origfieldval, final=true]
  }%
}

\map{%
  \step[fieldset=reportnumber, origfieldval, final=true]
}%

\map{%
  \step[fieldsource=volume, match=\hep@reg@exp@one, final]
  \step[fieldsource=volume, match=\hep@reg@exp@two, replace={$2}$]
  \step[fieldsource=journal, fieldtarget=journaltitle]
  \step[fieldset=journaltitle, fieldvalue={\space$1$2}, append=true]
}%

\map{%
  \step[fieldsource=url, final=true]
  \step[fieldset=protocollessurl, origfieldval, final=true]
  \step[fieldsource=protocollessurl, match=\hep@reg@exp@url, replace={}]
}%

\map{%
  \step[fieldsource=pmcid, final=true]
  \step[fieldset=pmc, origfieldval, final=true]
  \step[fieldsource=pmc, match=\hep@reg@exp@pmc, replace={}]}
%

%
\letbibmacro Provide the \letbibmacro macro for old biblatex installations.

\providecommand{\letbibmacro}{[2]{\csletcs{abxmacro@#1}{abxmacro@#2}}

\letbibmacro collaboration Execute the author macro even if only the collaboration information if present and override the author information with collaboration information if present.

\renewbibmacro*{author/translator+others}{%\ifboolexpr{\test\ifuseauthor and (\not\test\{\ifnameundef{author}\} or \not\test\{\iffieldundef{collaboration}\})\} \usebibmacro{author}\} {\usebibmacro{translator+others}}
\letbibmacro{hep@bib@author}{author}
\renewbibmacro*{author}{%\iffieldundef{collaboration}\{\usebibmacro{hep@bib@author}\}\% \iffieldundef{collaboration}\textit{\printfield{collaboration}}\%\}

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

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

\reportnumber Print the reportnumber as commalist using the relsize package [5].

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

\url Show URLs without the protocol.

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

\hepbibonline Private \hepbibonline macro
\newcommand{\hepbibonline}{[2]{\ifhyperref\{\online{#1}{#2}\}{\nolinkurl{#2}}\%\}

6
pmid Present PubMed IDs.

pmcid

\DeclareFieldFormat{pmid}{% \\mkbibacro{PM}\addcolon\space% \\hep@bib@online{https://www.ncbi.nlm.nih.gov/pubmed/#1}{#1}%(169)
}\DecllareFieldFormat{pmc}{% \\mkbibacro{PMC}\addcolon\space% \\hep@bib@online{https://www.ncbi.nlm.nih.gov/pmc/articles/PMC#1}{#1}%(175)
}

pmcid Add the pre-print and PubMed information if present.

reportnumber

\letbibmacro{hep-doi+eprint+url}{doi+eprint+url}
\renewbibmacro*{doi+eprint+url}{% 
\usebibmacro{hep-doi+eprint+url}
\iffieldundef{pmc}{% 
\printfield{pmid}\newunit%
\printfield{pmc}\newunit%
\printfield{reportnumber}\newunit%
\newunitpunct\textnumero\intitlepunct%
\printfield{reportnumber}\newunit%
\}%

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

CDS Add CERN Document server as a eprint option

\hep@eprint{CDS}{https://cds.cern.ch/record}
\DeclareFieldAlias{eprint:cds}{eprint:CDS}

HEPData Add the repository for publication-related High-Energy Physics data as a eprint option

\hep@eprint{HEPData}{https://www.hepdata.net/record}
\DeclareFieldAlias{eprint:hepdata}{eprint:HEPData}

CTAN Add CTAN as a eprint option

\hep@eprint{CTAN}{https://ctan.org/pkg}
\DeclareFieldAlias{eprint:ctan}{eprint:CTAN}
GitHub Add GitHub as a eprint option

\texttt{\textbackslash hep@eprint\{GitHub\}\{https://github.com\}}
\texttt{\textbackslash DeclareFieldAlias\{eprint:github\}\{eprint:GitHub\}}

GitLab Add GitLab as a eprint option

\texttt{\textbackslash hep@eprint\{GitLab\}\{https://gitlab.com\}}
\texttt{\textbackslash DeclareFieldAlias\{eprint:gitlab\}\{eprint:GitLab\}}

Bitbucket Add Bitbucket as a eprint option

\texttt{\textbackslash hep@eprint\{Bitbucket\}\{https://bitbucket.org\}}
\texttt{\textbackslash DeclareFieldAlias\{eprint:bitbucket\}\{eprint:Bitbucket\}}

Launchpad Add Launchpad as a eprint option

\texttt{\textbackslash hep@eprint\{Launchpad\}\{https://launchpad.net\}}
\texttt{\textbackslash DeclareFieldAlias\{eprint:launchpad\}\{eprint:Launchpad\}}

SourceForge Add SourceForge as a eprint option

\texttt{\textbackslash hep@eprint\{SourceForge\}\{https://sourceforge.net/projects\}}
\texttt{\textbackslash DeclareFieldAlias\{eprint:sourceforge\}\{eprint:SourceForge\}}

HEPForge Add HEPForge as a eprint option

\texttt{\textbackslash DeclareFieldFormat\{eprint:hepforge\}\{%}
\texttt{\hspace{1cm}HEPForge\addcolon\space\hep@bib@online\{https://#1/hepforge.org\}\{#1\}%}
\texttt{\textbackslash DeclareFieldAlias\{eprint:HEPForge\}\{eprint:hepforge\}}

Define bibstrings for reference names.

\texttt{\textbackslash NewBibliographyString\{refname\}}
\texttt{\textbackslash NewBibliographyString\{refsname\}}
\texttt{\textbackslash DefineBibliographyStrings\{english\}\{%
\hspace{1cm}refname = \{reference\},\n\hspace{1cm}refsname = \{references\}\%
\textbackslash \}}

\texttt{\textbackslash ccite Define \textit{clever} citation macros.}
\texttt{\textbackslash Ccite}

\texttt{\textbackslash DeclareCiteCommand\{\texttt{\textbackslash ccite}\}\{%}
\texttt{\hspace{1cm}ifnum\thechapter=1\textbackslash bibstring\{refname\}\}}
\texttt{\hspace{1cm}else\%
\hspace{1cm}\textbackslash bibstring\{refsname\}\%
\hspace{1cm}fi\%
\hspace{1cm}\textbackslash addnbspace\textbackslash bibopenbracket\%
\hspace{1cm}\texttt{\usebibmacro\{cite:init\}\usebibmacro\{prenote\}\%
\hspace{1cm}\{\usebibmacro\{citeindex\}\usebibmacro\{cite:comp\}\}\}}
\texttt{\}}
\texttt{\}}
Define the dbx file containing the hep-bibliography datamodel.

```latex
\begin{filecontents}{\jobname.bib}
@article{Ade:2015xua,
    author = "Ade, P. A. R. and others",
    collaboration = "Planck",
    title = "Planck 2015 results. XIII. Cosmological parameters",
    eprint = "1502.01589",
    archivePrefix = "arXiv",
    primaryClass = "astro-ph.CO",
    doi = "10.1051/0004-6361/201525830",
    journal = "Astron. Astrophys."
    volume = "594",
    pages = "A13",
    year = "2016"
}
\end{filecontents}
```

@article{Agashe:2014kda,
  author = "Olive, K. A. and others",
collaboration = "Particle Data Group",
title = "Review of Particle Physics",
doi = "10.1088/1674-1137/38/9/090001",
journal = "Chin. Phys. C",
volume = "38",
pages = "090001",
year = "2014"
}

@article{Ade:2013zuv,
  author = "Ade, P. A. R. and others",
collaboration = "Planck",
title = "Planck 2013 results. XVI. Cosmological parameters",
eprint = "1303.5076",
archivePrefix = "arXiv",
primaryClass = "astro-ph.CO",
reportNumber = "CERN-PH-TH-2013-129",
doi = "10.1051/0004-6361/201321591",
journal = "Astron. Astrophys.",
volume = "571",
pages = "A16",
year = "2014"
}

@article{Aad:2012tfa,
  author = "Aad, Georges and others",
collaboration = "ATLAS",
title = "Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC",
eprint = "1207.7214",
archivePrefix = "arXiv",
primaryClass = "hep-ex",
doi = "10.1016/j.physletb.2012.08.020",
volume = "716",
pages = "1--29",
year = "2012"
}

@article{Chatrchyan:2012ufa,
  author = "Chatrchyan, Serguei and others",
collaboration = "CMS",
title = "Observation of a New Boson at a Mass of 125 GeV with the CMS Experiment at the LHC",
eprint = "1207.7235",
archivePrefix = "arXiv",
primaryClass = "hep-ex",

journal = "JINST",
volume = "3",
pages = "S08003",
year = "2008"
}

@article{Sjostrand:2006za,
  author = "Sjostrand, Torbjorn and Mrenna, Stephen
  and Skands, Peter Z.",
  title = "{PYTHIA 6.4 Physics and Manual}",
  eprint = "hep-ph/0603175",
  archivePrefix = "arXiv",
  reportNumber = "FERMILAB-PUB-06-052-CD-T, LU-TP-06-13",
  doi = "10.1088/1126-6708/2006/05/026",
  journal = "JHEP",
  volume = "05",
  pages = "026",
  year = "2006"
}

@article{Spergel:2003cb,
  author = "Spergel, D. N. and others",
  collaboration = "WMAP",
  title = "{First year Wilkinson Microwave Anisotropy Probe (WMAP) observations: Determination of cosmological parameters}",
  eprint = "astro-ph/0302209",
  archivePrefix = "arXiv",
  doi = "10.1086/377226",
  journal = "Astrophys. J. Suppl.",
  volume = "148",
  pages = "175--194",
  year = "2003"
}

@article{Agostinelli:2002hh,
  author = "Agostinelli, S. and others",
  collaboration = "GEANT4",
  title = "{GEANT4--a simulation toolkit}",
  reportNumber = "SLAC-PUB-9350, FERMILAB-PUB-03-339, CERN-IT-2002-003",
  doi = "10.1016/S0168-9002(03)01368-8",
  journal = "Nucl. Instrum. Meth. A",
  volume = "506",
  pages = "250--303",
  year = "2003"
}

@article{Randall:1999ee,
  author = "Randall, Lisa and Sundrum, Raman",
  title = "{A Large mass hierarchy from a small extra dimension}",

@article{Perlmutter:1998np,
author = "Perlmutter, S. and others",
collaboration = "Supernova Cosmology Project",
title = "{Measurements of $\Omega$ and $\Lambda$ from 42 high redshift supernovae}",
eprint = "astro-ph/9812133",
archivePrefix = "arXiv",
reportNumber = "LBNL-41801, LBL-41801",
doi = "10.1086/307221",
journal = "Astrophys. J.",
volume = "517",
pages = "565--586",
year = "1999"
}

@article{Riess:1998cb,
author = "Riess, Adam G. and others",
collaboration = "Supernova Search Team",
title = "{Observational evidence from supernovae for an accelerating universe and a cosmological constant}",
eprint = "astro-ph/9805201",
archivePrefix = "arXiv",
doi = "10.1086/300499",
journal = "Astron. J.",
volume = "116",
pages = "1009--1038",
year = "1998"
}

@article{Witten:1998qj,
author = "Witten, Edward",
title = "{Anti-de Sitter space and holography}",
eprint = "hep-th/9802150",
archivePrefix = "arXiv",
reportNumber = "IASSNS-HEP-98-15",
doi = "10.4310/ATMP.1998.v2.n2.a2",
volume = "2",
pages = "253--291",
year = "1998"}
@article{Gubser:1998bc,
  title = "{Gauge theory correlators from noncritical string theory}",
  eprint = "hep-th/9802109",
  archivePrefix = "arXiv",
  reportNumber = "PUPT-1767",
  doi = "10.1016/S0370-2693(98)00377-3",
  volume = "428",
  pages = "105--114",
  year = "1998"
}

@article{Maldacena:1997re,
  author = "Maldacena, Juan Martin",
  title = "{The Large N limit of superconformal field theories and supergravity}",
  eprint = "hep-th/9711200",
  archivePrefix = "arXiv",
  reportNumber = "HUTP-97-A097, HUTP-98-A097",
  doi = "10.1023/A:1026654312961",
  volume = "2",
  pages = "231--252",
  year = "1998"
}

@article{Schlegel:1997yv,
  author = "Schlegel, David J. and Finkbeiner, Douglas P. and Davis, Marc",
  title = "{Maps of dust IR emission for use in estimation of reddening and CMBR foregrounds}",
  eprint = "astro-ph/9710327",
  archivePrefix = "arXiv",
  doi = "10.1086/305772",
  journal = "Astrophys. J.",
  volume = "500",
  pages = "525",
  year = "1998"
}

@article{Guth:1980zm,
  author = "Guth, Alan H.",
  editor = "Fang, Li-Zhi and Ruffini, R.",
  title = "{The Inflationary Universe: A Possible Solution to the Horizon and Flatness Problems}",
  reportNumber = "SLAC-PUB-2576",
}


D Readme

<#readme>

# The `hep-bibliography` package

Bibliographies for high energy physics

## Introduction

The `hep-bibliography` package extends the `biblatex` package with some functionality mostly useful for high energy physics. In particular it makes full use of all `bibtex` fields provided by `inspirehep.net`

The package can be loaded via `\usepackage{hep-bibliography}`.

## Author

Jan Hajer
This file may be distributed and/or modified under the conditions of the 'LaTeX' Project Public License, either version 1.3c of this license or (at your option) any later version. The latest version of this license is in 'http://www.latex-project.org/lppl.txt' and version 1.3c or later is part of all distributions of LaTeX version 2005/12/01 or later.

References


