



# ATLAS NOTE

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## Guide to references and Bib $\text{\TeX}$ in ATLAS documents

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### Abstract

This document illustrates how to use Bib $\text{\TeX}$  for the bibliography of your ATLAS paper. It discusses what to pay attention to when creating references and how to get round common problems. Use of both `biblatex` and the more traditional Bib $\text{\TeX}$  for formatting the references is covered. A `biblatex` style file and two Bib $\text{\TeX}$  (`.bst`) style files have been created that can be used with any of the ATLAS supported journals, depending on whether they require the title of the references to be included or not.

This document was generated using version 01-05-04 of the ATLAS L $\text{\TeX}$  package.

# 1 Introduction

The ATLAS Collaboration has specific guidelines as to what constitutes a good bibliographic style. For example, a reference to a paper by an LHC Collaboration must not include the first author, whereas, if the paper is by any other collaboration it should. Where available, links to the arXiv entries of the papers should be included. To help authors with their paper preparations, a standard ATLAS bibliographic style has been developed which incorporates all of these requirements, and, at the same time, is largely compatible with those of the journals the papers are being submitted to.

It is strongly recommended to use BibTeX for the references. Although it often appears harder to use at the beginning, it means that the number of typos should be reduced significantly and the format of the references will be correct, without you having to worry about formatting it. In addition the order of the references is automatically correct.

A new implementation of BibTeX is provided by the biblatex [1] package. All ATLAS documents use this package now by default. One major advantage of the package is that it defines quite a few more entry types that are much more suitable for online documents and things like CONF and PUB notes. It is also possible to use UTF-8 encoding in the entries, which means that letters such as ä, é, ß can be included directly in the text. Adjustment of the style is also much simpler. It is possible to take a base style and then just apply changes to it rather than having to learn the details of how bst files are constructed.

The nomenclature is rather confusing as the package biblatex can use either biber or bibtex to process your .bib files. There are 3 possible cases that will be considered here:

1. biblatex + biber;
2. biblatex + bibtex;
3. Traditional BibTeX with bibtex;

2. is the default for ATLAS. You can change to the biber backend (alternative 1.) by passing the option backend=biber to atlaspackage. Use of traditional BibTeX (alternative 3.) is deprecated. However the templates indicate via commented out commands how to use it.

The typical compilation cycle when using biblatex with the bibtex backend or the traditional version of BibTeX looks like the following:

```
pdflatex mydocument
bibtex mydocument
pdflatex mydocument
pdflatex mydocument
```

If you use biblatex with the backend biber rather than bibtex, replace the command bibtex with biber.

biber and bibtex create a file with the extension .bbl, which contains the actual references used, and L<sup>A</sup>T<sub>E</sub>X then takes care to include them in your paper. Note that only after the third run of pdfL<sup>A</sup>T<sub>E</sub>X will all references be correct. Unless you change a reference you do not have to do the bibtex/biber step again. The style of the references is governed by the biblatex options that you use or the BibTeX style file (which has the extension bst).

You can of course use L<sup>A</sup>T<sub>E</sub>X rather than pdfL<sup>A</sup>T<sub>E</sub>X, but pdfL<sup>A</sup>T<sub>E</sub>X is preferred, as things like clicking on cross-references and links to publications in the bibliography work much more reliably with pdfL<sup>A</sup>T<sub>E</sub>X.

## 2 Bibliography database

One or more files with the extension `.bib` (in this example: `atlas_paper.bib`) should contain all the references. The files may also contain references that you do not use, so they may act like a library of references.

You should check that you base your `.bib` file on the examples provided, as it has the references in the style recommended for ATLAS publications. This will definitely save time in the reviewing process!

If you use `biblatex`, you should include commands like:

```
\addbibresource{../atlas_latex.bib}
\addbibresource{atlas_biblatex.bib}
```

in the preamble of our document.

If you use traditional BibTeX you include the source file(s) at the place where the bibliography should be printed as follows:

```
{\raggedright
  \bibliography{../atlas_latex,%
    atlas_biblatex}
}
```

at the point where the bibliography should be printed.

If you use `atlaspackage`, then `biblatex` is used with the `bibtex` backend by default. Turn off the use with the option `biblatex=false`.

If you want to use the `biber` backend, include `atlaspackage` with the option `backend=biber` and use the command `biber` instead of `bibtex` to process the `.bib` files. Note that `biber` returns an error if it encounters an empty `.bib` file.

## 3 ATLAS bibliography style files

The format of the references in your ATLAS paper depends on the journal to which you are submitting, but in general we can classify the journal styles in two categories: those which require the title of the references and those which do not. To ensure the homogeneity in all ATLAS publications, `biblatex` and BibTeXstyle files are provided for each of these categories along with an example file that illustrates how different types of bibliographic material should be referenced.

The `biblatex` style file can be found in the directory `latex`, while the traditional BibTeX style files can be found in the directory `bibtex/bst` of the `atlaslatex` package.

For the final version of ATLAS notes, both internal and public, a style without the title for papers in journals is recommended. For draft versions, it is good to include the title, as it is then clearer what the reference refers to.

### 3.1 biblatex style file

If you use `biblatex` the basic options are set in `latex/atlaspackage.sty`. A few adjustments are made in the style file `latex/atlasbiblatex.sty`, which you should include with a normal `\usepackage` command. By default, this style includes the document title. The title can be turned off by including the option `articletitle=false`. This option turns off the title for entry types `@Article` and `@Booklet`, as `@Booklet` should be used as the entry type for CONF and PUB notes.

To print the bibliography include the command:

```
\printbibliography
```

where it should get printed.

### 3.2 Traditional BibTeX style files

If you use traditional BibTeX, you should choose between the two style files given below, depending on the journal to which they wish to submit their paper. These style files have been successfully tested in the framework provided by the journals listed in the following sections and with the standard ATLAS document template.

#### 3.2.1 BibTeX style file for journals with the title in the reference

BibTeX style file: `atlasBibStyleWithTitle.bst`. Journals:

- JHEP
- JINST
- NJP

Include at the end of your `.tex` file the following lines:

```
\bibliographystyle{bibtex/bst/atlasBibStyleWithTitle}  
\bibliography{atlas-bibtex}
```

You can use the BibTeX style `JHEP.bst` for papers that are supposed to be submitted to JHEP. However, note that JHEP only prints the arXiv entry etc. if the entry type is `@Article`. In the examples included in this document, the entry type `@Booklet` is used for preprints and CONF notes, as this works best with other BibTeX styles. If you are planning to submit to JHEP/JINST and use `JHEP.bst` replace all `@Booklet` entry types with `@Article`.

### 3.2.2 BibTeX style file for journals without the title in the reference

BibTeX style file: `atlasBibStyleWoTitle.bst`. Journals:

- EPJC
- NPB
- PLB
- PRD
- PRL

Include at the end of your `.tex` file the following lines:

```
\bibliographystyle{bibtex/bst/atlasBibStyleWoTitle}
\bibliography{atlas-bibtex}
```

## 4 Journal names

It is often the case that one sees several different abbreviations for journal names in one set of references. In order to try to get round this problem, macros are defined that contain the standard abbreviations. It is then also possible to modify the abbreviation if a journal uses a different convention from ours.

The abbreviations can be found in the style file `latex/atlasjournal.sty`, which is included by default if you load `atlasphysics`. If you use traditional BibTeX, you should give the journal name in the form `journal = "\PLB{}`",. If you use `biblatex` the form `journal = "\PLB"`, works without problems. This style file also defines several other abbreviations that can be adjusted to the journal style. Standard sets for different journals can be provided by an option in the future.

## 5 References from Inspire

A common way to find a reference is using Inspire [\[2\]](#). You can select the output format as BibTeX and simply copy the result(s) to your `.bib` file. In order that the reference follows the ATLAS conventions you need to do the following, assuming that the reference is for an LHC collaboration paper:

1. Change the field name `author` to `xauthor`.
2. Change the field name `collaboration` to `author` and write the collaboration in the form `"{ATLAS Collaboration}"`. Note the use of both quotes and curly braces.
3. Either replace the journal name with the appropriate macro, e.g. `"Phys.Lett."` with `"\PLB"`; or insert spaces between the parts of the name, i.e. `"Phys. Lett."`.
4. Remove the journal letter from the volume and include it in the journal, e.g. `"Eur. Phys. J. C"`, `"Phys. Rev. D"`.

If the reference is for another collaboration, rename the `collaboration` field to `xcollaboration` and insert `{NonLHC Collaboration}` and at the beginning of the `author` field.

Instead of renaming the `author` or `collaboration` fields, you can of course simply delete them!

## 6 Bibliography database tips

- A bibliographic item is created in the .bib file as:

```
@Article{lhcollaboration:2012,  
  author = "...",  
  title  = "...",  
  further bibliographic information}  
}
```

The identifier directly after the document type declaration is how one should refer to this item inside the main .tex file. Use a non-breaking space between the citation and the reference, i.e. ... measured previously~\cite{lhcollaboration:2012}.

- When referencing ATLAS CONF notes, the URL to the CDS page should be included. For this to work, in the preamble of your .tex document add \usepackage{hyperref}. Note that hyperref is included by default if you use atlasdoc and/or atlaspackage.
- Depending on the style that is used, if the DOI is filled and the hyperref package loaded, the title of the journal can be highlighted in blue and become a hyperlink to the online paper.
- When referencing papers from journals like PRD, PLB, etc., one has to be careful not to include the “D” or “B” as part of the volume. Instead these belong to the journal name. You can either use the macros that have been added to the .bst style files for these journals, or the macros defined in atlasjournal. If you want to use biblatex or other bst files, it is probably better to use the atlasjournal definitions.
- Comments are not part of the bibliography database format. Text outside entries will be ignored. Do not try to comment out fields inside an entry! If there are fields that you do not want, you have to move them outside the entry.

In earlier versions of this document, it was recommended to include the cite package, if you use BibTeX and want to cite multiple references in the format [m-n]. However, the journal style files can do this for you by using the option sort&compress option if natbib is used. The revtex style also does this for you. If you use biblatex use the option style=numeric-comp.

## 7 Examples

- LHC Collaboration [3]
- Other Collaboration [4]
- Individual authors [5]
- arXiv only [6]
- arXiv only submitted to a journal [7]
- ATLAS CONF Note [8]

While the `collaboration` field is a nice idea, it is not supported by many BibTeX styles. Hence in Ref. [3], `collaboration` has been renamed to `author` and the `author` field has been renamed as `xauthor`. If you use `collaboration` and omit `author` you will get a warning when you run `bibtex`.

Note that in Ref. [8] the entry type `@Article` used to be used and the field `journal` was abused for the conference note number. This is a result of the traditional BibTeX restrictions on the entry types. The current version uses `@Booklet` and includes the CONF note number via the `howpublished` field. In general, `biblatex` provides a lot more entry types. This is one of the reasons for the move to `biblatex` as the default for the ATLAS templates. All `atlaslatex` documentation uses `biblatex` with the backend `biber`. The default for ATLAS documents is to use `biblatex` with the backend `bibtex`.

For papers that have been submitted to a journal, but not yet published, use the entry type `@Article`. You should specify the journal in the `journal` field in form:

```
journal = "submitted to \PLB{" or  
journal = "accepted by \PLB{".
```

## History

**2013-08-13: Cristina Oropenza Barrera** First version of the document released.

**2014-08-14: Ian Brock** Updated the example references a bit and gave a bit more background information.

**2014-12-03: Ian Brock** Text taken from paper template and merged into this document. Document adjusted for use of `biblatex` as the default.

**015-01-30** Try to clarify nomenclature and what the recommended way to use BibTeX proceed is.

## References

- [1] *biblatex – Bibliographies in L<sup>A</sup>T<sub>E</sub>X using BibTeX for sorting only*, URL: <http://www.ctan.org/pkg/biblatex>.
- [2] *INSPIRE, the High Energy Physics information system*, URL: <http://inspirehep.net>.
- [3] ATLAS Collaboration, *Searches for supersymmetry with the ATLAS detector using final states with two leptons and missing transverse momentum in  $\sqrt{s} = 7$  TeV proton-proton collisions*, *Phys. Lett. B* **709** (2012) 137, arXiv: [1110.6189 \[hep-ex\]](#).
- [4] PHOBOS Collaboration, B. Alver et al., *Cluster properties from two-particle angular correlations in pp collisions at  $\sqrt{s} = 200$  GeV and 410 GeV*, *Phys. Rev. C* **75** (2007) 054913, arXiv: [0704.0966 \[hep-ex\]](#).
- [5] A. Sherstnev and R. S. Thorne, *Parton distributions for LO generators*, *Eur. Phys. J. C* **55** (2008) 553, arXiv: [0711.2473 \[hep-ph\]](#).
- [6] P. Z. Skands, *The Perugia tunes*, 2009, arXiv: [0905.3418 \[hep-ph\]](#).
- [7] J. Monk and C. Oropenza-Barrera, *The HBOM method for unfolding detector effects*, submitted to Nucl. Instrum. Meth. (2011), arXiv: [1111.4869 \[hep-ex\]](#).

- [8] ATLAS Collaboration, *Search for gluino-mediated scalar top and bottom quark production in final states with missing transverse energy and at least three b-jets with the ATLAS detector*, ATLAS-CONF-2012-058, 2012, URL: <http://cdsweb.cern.ch/record/1453786>.