



**UiO** : Department of Mathematics  
University of Oslo

# Introduction to Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub>

**Martin Helsø**

**January 10, 2020**

# The basics

## bibliography.bib

---

```
@article
{
  key1,
  author = {...},
  title  = {...},
  ...
}
```

```
@book
{
  key2,
  author = {...},
  title  = {...},
  ...
}
```

## filename.tex

---

```
\documentclass{memoir}

\usepackage[backend = biber]{biblatex}
\addbibresource{bibliography.bib}

\begin{document}

Some text and a citation \cite{key1}.
More text and a new citation \cite{key2}.

\printbibliography

\end{document}
```

# The basics

## bibliography.bib

---

### @article

```
{  
  key1,  
  author = {...},  
  title  = {...},  
  ...  
}
```

### @book

```
{  
  key2,  
  author = {...},  
  title  = {...},  
  ...  
}
```

## filename.tex

---

```
\documentclass{memoir}  
  
\usepackage[backend = biber]{biblatex}  
\addbibresource{bibliography.bib}  
  
\begin{document}
```

Some text and a citation `\cite{key1}`.  
More text and a new citation `\cite{key2}`.

```
\printbibliography  
  
\end{document}
```

# Compilation

Compile with the backend in between two ordinary compilations:

```
pdflatex filename.tex  
biber filename  
pdflatex filename.tex (×2)
```

Three possible values for the backend:

**biber** — written for Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub>

**bibtex** — written for the older package BibT<sub>E</sub>X

**bibtex8** — 8 bit reimplementations of **bibtex**

# Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub> vs. BibT<sub>E</sub>X

- 1 Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub> supports UTF-8
- 2 Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub> has more predefined reference types, e.g., `online/www` for web pages
- 3 Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub> is easier to customize
  - Supports automatic language switching with `babel`
  - Can create multiple bibliographies
- 4 **Databases export to BibT<sub>E</sub>X**, but the output can also be read by Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub>
- 5 **Some journals require BibT<sub>E</sub>X**

## Filling the .bib file

Typically filled by copying metadata from a database

- Change the cite key to something that you remember!

The next three slides show how to extract metadata from three common databases

Check the library subject page for other databases:

<https://www.uib.uio.no/english/subjects/informatics-mathematics/mathematics/>



[Previous](#) [Up Next](#)

Select alternative format ▾

Publications results for: Author=(Hartshorne) AND Title=(Algebraic Geometry)"

**MR3362490** Indexed

Hartshorne, Robin(1-CA-NDM)

**Basic algebraic geometry. Volumes 1 and 2. Third edition [book review of MR3100243; MR3100288].**

*SIAM Rev.* 56 (2014), no. 4, 716-718.

00A17

[Review PDF](#) | [Clipboard](#) | [Journal](#) | [Article](#) | [Make Link](#)

#### Citations

From References: 0

From Reviews: 0

#### References

1. R. HARTSHORNE, *Algebraic Geometry*, Springer-Verlag, New York, 1977. [MR0463157](#)

This list reflects references listed in the original paper as accurately as possible with no attempt to correct error.

[Previous](#) [Up Next](#)



[Previous](#) [Up](#) [Next](#)

Select alternative format

Select alternative format

PDF

PDF for printing

BibTeX

AMSRefs

EndNote

Hartshorne) AND Title=(Algebraic Geometry)"

Volumes 1 and 2. Third edition [book review of [MR3100243](#);

[SIAM Rev.](#) 56 (2014), no. 4, 716–718.

[00A17](#)

[Review PDF](#) | [Clipboard](#) | [Journal](#) | [Article](#) | [Make Link](#)

#### Citations

From References: 0

From Reviews: 0

#### References

1. R. HARTSHORNE, *Algebraic Geometry*, Springer-Verlag, New York, 1977. [MR0463157](#)

This list reflects references listed in the original paper as accurately as possible with no attempt to correct error.

[Previous](#) [Up](#) [Next](#)



# ams.org/mathscinet

Sometimes the exported metadata contains undefined macros

Solution: `\usepackage{mathscinet}`



Cornell University

arXiv.org > math > arXiv:1708.04101

Mathematics > Algebraic Geometry

## Rational Quartic Symmetroids

Martin Helsø

(Submitted on 14 Aug 2017)

We classify rational, irreducible quartic symmetroids in projective 3-space.

Comments: 25 pages, 5 figures

Subjects: **Algebraic Geometry (math.AG)**

MSC classes: 14M12, 14J26

Cite as: arXiv:1708.04101 [math.AG]

(or arXiv:1708.04101v1 [math.AG] for this version)

### Bibliographic data

[Enable Bibex(What is Bibex?)]

### Submission history

From: Martin Helsø [view email]

[v1] Mon, 14 Aug 2017 12:45:44 UTC (1,663 KB)

We gratefully acknowledge support from  
the Simons Foundation and member institutions.

Search...

All fields

Search

Help | Advanced Search

### Download:

- PDF
- Other formats

(license)

Current browse context:

**math.AG**

< prev | next >  
new | recent | 1708

Change to browse by:

math

References & Citations

- NASA ADS

**Export citation**  
Google Scholar

Bookmark



# scholar.google.com

Google Scholar

hartshorne algebraic geometry



Articles

About 19,100 results (0.09 sec)

Any time

Since 2018

Since 2017

Since 2014

Custom range...

[BOOK] **Algebraic geometry**

R Hartshorne - 2013 - books.google.com

Robin Hartshorne studied algebraic geometry with Oscar Zariski and David Mumford at Harvard, and with J.-P. Serre and A. Grothendieck in Paris. After receiving his Ph. D. from Princeton in 1963, Hartshorne became a Junior Fellow at Harvard, then taught there for

☆  Cited by 15826 Related articles All 9 versions 

# scholar.google.com

Google Scholar

hartshorne algebraic geometry



Articles

About 19,100 results (0.09 sec)

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

include patents

include citations

Create alert

[BOOK] [Algebraic geometry](#)

R Hartshorne - 2013 - books.google.com

Robin Hartshorne studied algebraic geometry with Oscar Zariski and David Mumford at Harvard, and with J.-P. Serre and A. Grothendieck in Paris. After receiving his Ph. D. from Princeton in 1963, Hartshorne became a Junior Fellow at Harvard, then taught there for

☆ 99 Cited by 15826 Related articles All 9 versions 00

[CITATION] Graduate texts in mathematics 52

RHA [Geometry](#) - New York-Heidelberg-Berlin: Springer-Verlag, 1977

☆ 99 Cited by 85 Related articles

[BOOK] [Commutative Algebra: with a view toward algebraic geometry](#)

D Eisenbud - 2013 - books.google.com

... HARTSHORNE, [Algebraic Geometry](#), MANIN ... Page 4, David Eisenbud  
with a View Toward [Algebraic Geometry](#) With 90 Illustrations Springer-Verlag  
Heidelberg London Paris Tokyo Hong Kong Barcelona Budapest Page 5 ...

☆ 99 Cited by 6036 Related articles All 16 versions 00

[HTML] [Algebraic geometry over groups I. Algebraic sets and](#)

G Baumslag, A Myasnikov, V Remeslennikov - Journal of [Algebra](#), 1999 - E

... HR; R. Hartshorne, [Algebraic Geometry](#), Springer-Verlag, New York (1977)  
varieties, Hebrew University, Jerusalem, 1996, preprint, RA1; A. Razborov; ...  
of finitely generated metabelian groups. [Algebra i Logika](#), 8 (1969), pp. 72-76

☆ 99 Cited by 314 Related articles All 14 versions Web of Science: 1

[BOOK] [Principles of algebraic geometry](#)

P Griffiths, J Harris - 2014 - books.google.com

... of Residues 3. Rudiments of Commutative and Homological [Algebra](#) with A  
SS Chern, Maurizio Cornalba, Ran Donagi, Robin Hartshorne, Bill Hoffman ...  
topology, and differential geometry that will be used in our study of [algebraic ge](#)

☆ 99 Cited by 8648 Related articles All 8 versions 00

[Algebraic K-theory and étale cohomology](#)

RW Thomason - Annales scientifiques de l'École Normale Supérieure, 1985 - eudml.org

×

Cite

MLA	Hartshorne, Robin. <i>Algebraic geometry</i> . Vol. 52. Springer Science & Business Media, 2013.
APA	Hartshorne, R. (2013). <i>Algebraic geometry</i> (Vol. 52). Springer Science & Business Media.
Chicago	Hartshorne, Robin. <i>Algebraic geometry</i> . Vol. 52. Springer Science & Business Media, 2013.
Harvard	Hartshorne, R., 2013. <i>Algebraic geometry</i> (Vol. 52). Springer Science & Business Media.
Vancouver	Hartshorne R. <i>Algebraic geometry</i> . Springer Science & Business Media; 2013 Jun 29.

[BibTeX](#) [EndNote](#) [RefMan](#) [RefWorks](#)

Fulltext @ UiO

## Citation notes

Input:

```
\cite[postnote]{key1}
```

```
\cite[prenote][postnote]{key2}
```

```
\cite[prenote][]{key3}
```

Output (depends on style):

```
[1, postnote]
```

```
[prenote 2, postnote]
```

```
[prenote 3]
```

## Citation notes

Input:

```
\cite[postnote]{key1}
```

```
\cite[prenote][postnote]{key2}
```

```
\cite[prenote][]{key3}
```

Output (depends on style):

```
[1, postnote]
```

```
[prenote 2, postnote]
```

```
[prenote 3]
```

Postnotes are used to specify which part of the source you are referencing:

```
\cite[Theorem~3.2]{key}
```

```
\cite[i-vi]{key}
```

## Citation notes

Input:

```
\cite[postnote]{key1}
```

```
\cite[prenote][postnote]{key2}
```

```
\cite[prenote][]{key3}
```

Output (depends on style):

```
[1, postnote]
```

```
[prenote 2, postnote]
```

```
[prenote 3]
```

Postnotes are used to specify which part of the source you are referencing:

```
\cite[Theorem~3.2]{key}
```

```
[1, Theorem 3.2]
```

```
\cite[i--vi]{key}
```

```
[1, pp. i–vi]
```

## Notes in optional arguments

Say we have defined the environment `theorem` (using, e.g., `thmtools`).

Then this works:

```
\begin{theorem}[\cite{key}]  
...  
\end{theorem}
```

But this fails:

```
\begin{theorem}[\cite[Theorem~7]{key}]  
...  
\end{theorem}
```



## Notes in optional arguments

Say we have defined the environment `theorem` (using, e.g., `thmtools`).

Then this works:

```
\begin{theorem}[\cite{key}]  
...  
\end{theorem}
```

But this fails:

```
\begin{theorem}[\cite[Theorem~7]{key}]  
...  
\end{theorem}
```

## Notes in optional arguments

Say we have defined the environment `theorem` (using, e.g., `thmtools`).

Then this works:

```
\begin{theorem}[\cite{key}]
```

```
...
```

```
\end{theorem}
```

But this **works**:

```
\begin{theorem}[\{\cite[Theorem~7]{key}\}]
```

```
...
```

```
\end{theorem}
```

# Citation commands

`\cite` bare

`\parencite` cite in parentheses

`\footcite` cite in footnote

`\authorcite` cite only author

`\titlecite` cite only title

`\yearcite` cite only year

`\urlcite` cite only url

## Cite multiple sources

Separate keys with comma:

```
\cite{key1, key2, key3}
```

Ensure that the multiple citations are printed in the same order as in the bibliography:

```
\usepackage[sortcites = true]{biblatex}
```

## Cite multiple sources

Separate keys with comma:

```
\cite{key1, key2, key3}
```

Ensure that the multiple citations are printed in the same order as in the bibliography:

```
\usepackage[sortcites = true]{biblatex}
```

For individual pre- and postnotes:

```
\cites[prenote][postnote]{key1}[prenote][postnote]{key2}
```

`sortcites = true` does not work for `\cites`

# Styles

```
\usepackage[style = alphabetic]{biblatex}
```

Built-in styles:

numeric [1]

alphabetic [Har77]

authoryear Hartshorne 1977

authortitle Hartshorne, Algebraic geometry

# Styles

```
\usepackage[style = alphabetic]{biblatex}
```

Built-in styles:

numeric [1]

alphabetic [Har77]

authoryear Hartshorne 1977

authortitle Hartshorne, Algebraic geometry

**style** affects both appearance in bibliography and in-text citations  
unless **citestyle** is used (make sure they match!)

# Styles

```
\usepackage[style = alphabetic]{biblatex}
```

Built-in styles:

numeric [1]

alphabetic [Har77]

authoryear Hartshorne 1977

authortitle Hartshorne, Algebraic geometry

**style** affects both appearance in bibliography and in-text citations  
unless **citestyle** is used (make sure they match!)

You can define your own style or import one (e.g., APA, Chicago, Nature, Science)



# Styles

```
\usepackage[style = alphabetic]{biblatex}
```

Built-in styles:

numeric [1]

alphabetic [Har77]

authoryear Hartshorne 1977

authortitle Hartshorne, Algebraic geometry

**style** affects both appearance in bibliography and in-text citations  
unless **citestyle** is used (make sure they match!)

You can define your own style or import one (e.g., APA, Chicago, Nature, Science)

All styles are hidden in this list: <https://ctan.org/topic/biblatex>

# Sorting schemes

```
\usepackage[sorting = nty]{biblatex}
```

nty Sort by name, title, year.

nyt Sort by name, year, title.

nyvt Sort by name, year, volume, title.

anyt Sort by alphabetic label, name, year, title.

anyvt Sort by alphabetic label, name, year, volume, title.

ynt Sort by year, name, title.

ydnt Sort by year (descending), name, title.

none Do not sort at all. All entries are processed in citation order.

# Shorthand

When citing software or a standard reference, you can help the reader recognize the source:

... was computed with [1]

... was computed with **[Macaulay2]**

... by a result in [Gro67]

... by a result in **[EGA]**

## Shorthand

When citing software or a standard reference, you can help the reader recognize the source:

... was computed with [1]                      ... by a result in [Gro67]  
... was computed with [Macaulay2]            ... by a result in [EGA]

Overrule the citation style for individual references by adding a shorthand to its entry in the .bib file:

```
@misc
{
  M2,
  shorthand      = {Macaulay2},
  author        = {Grayson, Daniel R. and Stillman, Michael E.},
  title         = {Macaulay2},
  howpublished  = {Available at
                  \url{http://www.math.uiuc.edu/Macaulay2/}}
}
```

## Further customization

Omit information from the bibliography:

```
\usepackage[doi = false,  
            isbn = false,  
            url = false]{biblatex}
```

Issuing `url = false` does not remove the URL from the `online` reference type

## Further customization

Omit information from the bibliography:

```
\usepackage[doi = false,  
            isbn = false,  
            url  = false]{biblatex}
```

Issuing `url = false` does not remove the URL from the `online` reference type

Use initials for given names with `giveninits = true`

## Further customization

Omit information from the bibliography:

```
\usepackage[doi = false,  
            isbn = false,  
            url = false]{biblatex}
```

Issuing `url = false` does not remove the URL from the `online` reference type

Use initials for given names with `giveninits = true`

Specify how many author names are printed before they are replaced by “et al.” with `maxcitenames = n` and `maxbibnames = m`

## Further customization

Omit information from the bibliography:

```
\usepackage[doi = false,  
            isbn = false,  
            url  = false]{biblatex}
```

Issuing `url = false` does not remove the URL from the `online` reference type

Use initials for given names with `giveninits = true`

Specify how many author names are printed before they are replaced by “et al.” with `maxcitenames = n` and `maxbibnames = m`

Print last names first:

```
\DeclareNameAlias{sortname}{family-given}  
\DeclareNameAlias{default}{family-given}
```



# Showkeys

`\usepackage{showkeys}`

Display cite keys (and label keys) in margin

## Bibliography

- [Ble+12] [1] Grigoriy Blekherman et al. “Algebraic boundaries of Hilbert’s SOS cones”. In: *Compos. Math.* 148.6 (2012), pp. 1717–1735. ISSN: 0010-437X. DOI: [10.1112/S0010437X12000437](https://doi.org/10.1112/S0010437X12000437). URL: <http://dx.doi.org/10.1112/S0010437X12000437>.
- [DI11] [2] Alex Degtyarev and Ilia Itenberg. “On real determinantal quartics”. In: *Proceedings of the Gökova Geometry-Topology Conference 2010*. Int. Press, Somerville, MA, 2011, pp. 110–128.
- [Hel17] [3] M. Helso. *Rational Quartic Symmetroids*. Aug. 2017. arXiv: 1708.04101 [[math.AG](#)].
- [Jes16] [4] Charles Minshall Jessop. *Quartic surfaces with singular points*. University Press, 1916.

# Showkeys

`\usepackage{showkeys}`

Display cite keys (and label keys) in margin

## Bibliography

- [Ble+12] [1] Grigoriy Blekherman et al. “Algebraic boundaries of Hilbert’s SOS cones”. In: *Compos. Math.* 148.6 (2012), pp. 1717–1735. ISSN: 0010-437X. DOI: [10.1112/S0010437X12000437](https://doi.org/10.1112/S0010437X12000437). URL: <http://dx.doi.org/10.1112/S0010437X12000437>.
- [DI11] [2] Alex Degtyarev and Iliia Itenberg. “On real determinantal quartics”. In: *Proceedings of the Gökova Geometry-Topology Conference 2010*. Int. Press, Somerville, MA, 2011, pp. 110–128.
- [Hel17] [3] M. Helso. *Rational Quartic Symmetroids*. Aug. 2017. arXiv: 1708.04101 [math.AG].
- [Jes16] [4] Charles Minshall Jessop. *Quartic surfaces with singular points*. University Press, 1916.

Aggressive output, prefer loading

`\usepackage[notcite, notref]{showkeys}`

# Showkeys

`\usepackage{showkeys}`

Display cite keys (and label keys) in margin

## Bibliography

- `Ble+12` [1] Grigoriy Blekherman et al. “Algebraic boundaries of Hilbert’s SOS cones”. In: *Compos. Math.* 148.6 (2012), pp. 1717–1735. ISSN: 0010-437X. DOI: [10.1112/S0010437X12000437](https://doi.org/10.1112/S0010437X12000437). URL: <http://dx.doi.org/10.1112/S0010437X12000437>.
- `DI11` [2] Alex Degtyarev and Iliia Itenberg. “On real determinantal quartics”. In: *Proceedings of the Gökova Geometry-Topology Conference 2010*. Int. Press, Somerville, MA, 2011, pp. 110–128.
- `Hel17` [3] M. Helso. *Rational Quartic Symmetroids*. Aug. 2017. arXiv: 1708.04101 [[math.AG](#)].
- `Jes16` [4] Charles Minshall Jessop. *Quartic surfaces with singular points*. University Press, 1916.

Aggressive output, prefer loading

`\usepackage[notcite, notref]{showkeys}`

Disable by passing **final** to document class

# Referencing without Bib<sup>a</sup>TeX

Join the names of different people with an **endash**:

Navier–Stokes equations, Cauchy–Schwarz inequality

**Navier--Stokes equations, Cauchy--Schwarz inequality**

# Referencing without Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub>

Join the names of different people with an **endash**:

Navier–Stokes equations, Cauchy–Schwarz inequality

**Navier--Stokes equations, Cauchy--Schwarz inequality**

This distinguishes multiple people from people with hyphenated names:

The Birch–Swinnerton-Dyer conjecture was formulated by two people, Birch and Swinnerton-Dyer

## Further reading (sorted by length)

### **Bib<sup>a</sup>TeX cheat sheet**

<http://mirror.hmc.edu/ctan/info/biblatex-cheatsheet/biblatex-cheatsheet.pdf>

### **Knut Hegna: Bib<sup>a</sup>TeX — course notes**

<http://www.ub.uio.no/fag/informatikk-matematikk/informatikk/kursmaterieell/biblatex/biblatexbooklet.pdf>

### **Dag Langmyhr & Knut Hegna: Local guide to Bib<sup>a</sup>TeX**

<http://dag.at.ifi.uio.no/latex-links/biblatex-guide.pdf>

### **Bib<sup>a</sup>TeX manual**

<http://mirrors.ctan.org/macros/latex/contrib/biblatex/doc/biblatex.pdf>

UiO : **Department of Mathematics**  
University of Oslo



**Martin Helsø**



**Introduction to Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub>**

