



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

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

**Martin Helsø**

**January 30, 2019**

# 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.ub.uio.no/english/subjects/  
informatics-mathematics/mathematics/](https://www.ub.uio.no/english/subjects/informatics-mathematics/mathematics/)

# ams.org/mathscinet

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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.

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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](#)

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

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# ams.org/mathscinet

Sometimes the exported metadata contains undefined macros

Solution: `\usepackage{mathscinet}`



Cornell University  
Library

arXiv.org > math > arXiv:1708.04101

Mathematics > Algebraic Geometry

## Rational Quartic Symmetroids

Martin Helseth

(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)

### Submission history

From: Martin Helseth [view email]

[v1] Mon, 14 Aug 2017 12:45:44 GMT (1663kb,D)

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and member institutions

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## Rational Quartic Symmetroids

[Helso, Martin](#)

We classify rational, irreducible quartic symmetroids in projective 3-space. They are either singular along a line or a smooth conic section, or they have a triple point or a tacnode.

**Publication:** eprint arXiv:1708.04101

**Pub Date:** August 2017

**Bibcode:** [2017arXiv170804101H](#) ?

**Keywords:** Mathematics - Algebraic Geometry; 14M12; 14J26

**E-Print Comments:** 25 pages, 5 figures

 Feedback/Corrections?

# arXiv.org

Exporting record(s) 1 to 1 (total: 1)

Select Export Format

BibTeX

```
@ARTICLE{2017arXiv170804101H,  
  author = {{Hels{\o}}, Martin},  
  title = "{Rational Quartic Symmetroids}",  
  journal = {arXiv e-prints},  
  keywords = {Mathematics - Algebraic Geometry, 14M12, 14J26},  
  year = 2017,  
  month = Aug,  
  eid = {arXiv:1708.04101},  
  pages = {arXiv:1708.04101},  
  archivePrefix = {arXiv},  
  eprint = {1708.04101},  
  primaryClass = {math.AG},  
  adsurl = {https://ui.adsabs.harvard.edu/#abs/2017arXiv170804101H},  
  adsnote = {Provided by the SAO/NASA Astrophysics Data System}  
}
```

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[BOOK] **Algebraic geometry**

R Hartshorne - 2013 - [books.google.com](https://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



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[CITATION] Graduate texts in mathematics 52

RHA **Geometry** - New York-Heidelberg-Berlin: Springer-Verlag, 1977

☆ ⓘ 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 ...

☆ ⓘ Cited by 6036 Related articles All 16 versions ⓘ

[HTML] **Algebraic geometry over groups I. Algebraic sets and**

G Baumslag, A Myasnikov, V Remeslennikov - Journal of **Algebra**, 1999 - Elsevier  
... 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

☆ ⓘ 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 geometry**

☆ ⓘ Cited by 8648 Related articles All 8 versions ⓘ

**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.
	<a href="#">BibTeX</a> <a href="#">EndNote</a> <a href="#">RefMan</a> <a href="#">RefWorks</a>

Fulltext @ UiO

# Citation notes

Input:

`\cite[postnote]{key}`

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

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

Output (depends on style):

`[1, postnote]`

`[prenote 2, postnote]`

`[prenote 3]`

# Citation notes

Input:

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

```
\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]{key}`

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

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`[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:

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

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

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**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:

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Use initials for given names with `giveninits = true`



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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`

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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](https://arxiv.org/abs/1708.04101) [[math.AG](#)].
- [Jes16] [4] Charles Minshall Jessop. *Quartic surfaces with singular points*. University Press, 1916.

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- [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.
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- [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 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](https://arxiv.org/abs/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>T<sub>E</sub>X

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>a</sup>TeX

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

## Further reading (sorted by length)

### **Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub> cheat sheet**

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

### **Knut Hegna: Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub> — course notes**

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

### **Dag Langmyhr & Knut Hegna: Local guide to Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub>**

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

### **Bib<sup>L</sup>A<sub>T</sub>E<sub>X</sub> manual**

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



# UiO : Department of Mathematics

University of Oslo



**Martin Helsø**



**Introduction to BibL<sup>a</sup>T<sub>E</sub>X**

