

DocumenterCitations.jl

version 1.2.1+dev

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Chapter 1

DocumenterCitations.jl

On Github: [JuliaDocs/DocumenterCitations.jl](#)

Version: 1.2.1+dev

[DocumenterCitations.jl](#) uses [Bibliography.jl](#) to add support for BibTeX citations in documentation pages generated by [Documenter.jl](#).

By default, [DocumenterCitations.jl](#) uses a numeric citation style common in the natural sciences, see e.g. the [journals of the American Physical Society](#), and the [REVTeX author's guide](#). Citations are shown in-line, as a number enclosed in square brackets, e.g., "Optimal control is a cornerstone in the development of quantum technologies [1]". [Alternative styles](#) are supported, including an [author-year style](#).

1.1 Installation instructions

You can install the latest version of [DocumenterCitations.jl](#) using the [built-in package manager](#)

```
pkg> add DocumenterCitations
```

In most cases, you will just want to have [DocumenterCitations](#) in the project that builds your documentation (e.g. [test/Project.toml](#)). Thus, you can also simply add

```
DocumenterCitations = "daee34ce-89f3-4625-b898-19384cb65244"
```

to the [deps] section of the relevant [Project.toml](#) file.

1.2 Telling Documenter.jl about your bibliography

First, place a BibTeX [refs.bib](#) file in the docs/src folder of your project. Then, in [docs/make.jl](#), instantiate the [CitationBibliography](#) plugin with the path to the [.bib](#) file. Assuming [Documenter](#) ≥ 1.0 , pass the plugin object to [makedocs](#) as an element of the `plugins` keyword argument:

```
using DocumenterCitations
```

```

bib = CitationBibliography(
  joinpath(@_DIR_, "src", "refs.bib");
  style=:numeric
)
makedocs(; plugins=[bib], ...)

```

In older versions of `Documenter.jl`, `bib` had to be passed as a positional argument to `makedocs`.

To use the `author-year` style that was the default prior to `DocumenterCitations` version 1.0, replace `style=:numeric` with `style=:authoryear`.

Somewhere in your documentation, like a `References` page, include a markdown block

```

# References

``@bibliography
```

```

to insert the bibliography for all cited references in the project. See [Syntax for the Bibliography Block](#) for more options.

You will also want to add custom [CSS Styling](#) to your documentation to improve the rendering of your bibliography.

Thus, a `full docs/make.jl` file might look something like this:

```

using DocumenterCitations
using Documenter
using Pkg

PROJECT_TOML = Pkg.TOML.parsefile(joinpath(@_DIR_, "..", "Project.toml"))
VERSION = PROJECT_TOML["version"]
NAME = PROJECT_TOML["name"]
AUTHORS = join(PROJECT_TOML["authors"], ", ") * " and contributors"
GITHUB = "https://github.com/JuliaDocs/DocumenterCitations.jl"

bib = CitationBibliography(
 joinpath(@_DIR_, "src", "refs.bib"),
 style=:numeric # default
)

makedocs(;
 authors=AUTHORS,
 sitename="DocumenterCitations.jl",
 format=Documenter.HTML(
 prettyurls=true,
 canonical="https://juliaquantumcontrol.github.io/DocumenterCitations.jl",
 assets=String["assets/citations.css"],
 footer="[$NAME.jl]($GITHUB) v$VERSION docs powered by
↔ [Documenter.jl](https://github.com/JuliaDocs/Documenter.jl).",
),
 pages=[
 "Home" => "index.md",
 "Syntax" => "syntax.md",

```

```

 "Citation Style Gallery" => "gallery.md",
 "CSS Styling" => "styling.md",
 "Internals" => "internals.md",
 "References" => "references.md",
],
 plugins=[bib],
)
deploydocs(; repo="github.com/JuliaDocs/DocumenterCitations.jl.git")

```

Bibliographies are also supported in [PDFs generated via LaTeX](#). All that is required is to replace `format=Documenter.HTML(...)` in the above code with `format=Documenter.LaTeX()`. See [docs/makepdf.jl](#) for an example. The resulting PDF files for the DocumenterCitations package are available as attachments to the [Releases](#).

The rendering of the documentation may be fine-tuned using the [DocumenterCitations.set\\_latex\\_options](#) function. Note that the bibliography in LaTeX is directly rendered for the [different styles](#) from the same internal representation as the HTML version. In particular, `bibtex/biblatex` is not involved in producing the PDF.

### 1.3 How to cite references in your documentation

You can put citations anywhere in your docs, both in the markdown pages and in the docstrings of any functions that are shown as part of the API documentation: The basic syntax is, e.g., `[GoerzQ2022](@cite)`, for a BibTeX key `GoerzQ2022` in `refs.bib`, which will be rendered in the default numeric style as "[2]". See [Syntax for Citations](#) for more details.

Clicking on the citations takes you to the bibliography ("[References](#)").

### 1.4 Examples

The following is a list of some projects that use DocumenterCitations:

- [Oceananigans](#)
- [QuantumPropagators](#)
- [QuantumControl](#)
- [TwoQubitWeylChamber](#)
- [QuantumClifford](#) and the parent [QuantumSavory organization](#)

### 1.5 Home References

This page cites the following references:

- [1] C. Brif, R. Chakrabarti and H. Rabitz. *Control of quantum phenomena: past, present and future*. [New J. Phys.](#) **12**, 075008 (2010).
- [2] M. H. Goerz, S. C. Carrasco and V. S. Malinovsky. *Quantum Optimal Control via Semi-Automatic Differentiation*. [Quantum](#) **6**, 871 (2022).

Also see the [full bibliography](#) for further references cited throughout this documentation.

## Chapter 2

# Syntax

### 2.1 Syntax for Citations

The following syntax is available to create citations in any markdown text:

- `[key](@cite)` is the basic syntax, e.g., `Refs. [GoerzQ2022](@cite) and [Tannor2007](@cite)` which is rendered in the default numeric style as "Refs. [2] and [3]".
- `[key; note](@cite)` allows to include a note in the citation, e.g., `See Ref. [GoerzQ2022; Eq. (1)](@cite)` which is rendered as "See Ref. [2, Eq. (1)]".
- Multiple keys can be combined in a single citation, e.g., `[BrumerShapiro2003, BrifNJP2010, Shapiro2012, KochJPCM2016; and references therein](@cite)` renders as "[1, 4-6, and references therein]".
- The direct `[text](@cite key)` can be used to link to a reference from arbitrary text, e.g., `[the Semi-AD paper](@cite GoerzQ2022)` renders as "[the Semi-AD paper](#)".

In `[...]`(@cite), the following variations can be used instead of @cite:

- `@citet`: Text-style citation. This embeds the citation in the text flow, e.g., "As shown by [Goerz et al. \[2\]](#)...". For the default numeric citations, this is an alternative to "As shown in Ref. [2]"
- `@citep`: Parenthetical citation. For the built-in styles, this is equivalent to just @cite.
- `@citet*`: Like @citet, but with the full list of authors, e.g., [Goerz, Carrasco and Malinovsky \[2\]](#).
- `@cite*/@citep*`: Like @cite/@citep, but with the full list of authors ([for non-numeric styles where this makes sense](#)).

Lastly, capitalizing the c in @citet or @citet\* ensures that the first letter of the citation is capitalized so that it can be used at the beginning of a sentence, e.g., [Von Winckel and Borzi \[7\]](#) (`[WinckelIP2008](@Citet)`) versus [von Winckel and Borzi \[7\]](#) (`[WinckelIP2008](@cite)`).

The `natbib` commands `@citealt`, `@citealp`, and `@citenum` commands are also recognized. They are not supported by any of the built-in styles, but may be handled by [custom styles](#).

See the [Citation Style Gallery](#) for examples of all the possible combinations.

## Citations in docstrings

In docstrings, citations can be made with the same syntax as above. However, since docstrings are also used outside of the rendered documentation (e.g., in the REPL help mode), they should be more self-contained.

The recommended approach is to use a `# References` section in the docstring with an abbreviated bibliography list that links to the [main bibliography](#). For example,

```
References
* [GoerzQ2022](@cite) Goerz et al. Quantum 6, 871 (2022)
```

in the documentation of the following Example:

`DocumenterCitations.Example - Type`.

```
Example
```

An example object citing Ref. [2] with a "References" section in its docstring.

### References

```
2 Goerz et al. Quantum 6, 871 (2022)
```

```
source
```

(cf. the [source of the Example type](#)).

If there was no explicit numerical citation in the main text of the docstring,

```
* [Goerz et al. Quantum 6, 871 (2022)](@cite GoerzQ2022)
```

rendering as

- [Goerz et al. Quantum 6, 871 \(2022\)](#)

would also have been an appropriate syntax.

## 2.2 Syntax for the Bibliography Block

### Default `@bibliography` block

```
``@bibliography
``
```

renders a bibliography for all references that are cited throughout the entire documentation, see [Cited References](#). As of version 1.0, the bibliography will not include entries that may be present in the `.bib` file, but that are not cited.

**Full @bibliography**

```
```@bibliography
*
```
```

Renders a bibliography for *all* references included in the .bib file, not just those cited in the documentation. This corresponds to the pre-1.0 default behavior.

**Multiple @bibliography blocks**

It is possible to have multiple @bibliography blocks. However, there can only be one "canonical" bibliography target for any citation (the location where a citation links to). Any @bibliography block will automatically skip entries that have already been rendered in an earlier canonical @bibliography block. Thus, for two consecutive

```
```@bibliography
```
```

blocks, the second block will not show anything.

On the other hand,

```
```@bibliography
```

```@bibliography
*
```
```

will first show all the cited references and then all the non-cited references. This exact setup is shown on the [References](#) page.

**Secondary @bibliography blocks**

Sometimes it can be useful to render a subset of the bibliography, e.g., to show the references for a particular page. Two things are required to achieve this:

- To filter the bibliography to a specific page (or set of pages), add a Pages field to the @bibliography block.
- To get around the caveat with [multiple @bibliography blocks](#) that there can only be one canonical target for each citation, add Canonical = false to the @bibliography block. The resulting bibliography will be rendered in full, but it will not serve as a link target. This is the only way to have a reference rendered more than once.

For example,

```
``@bibliography
Pages = ["index.md"]
Canonical = false
```
```

renders a bibliography only for the citations on the [Home](#) page:

- [1] C. Brif, R. Chakrabarti and H. Rabitz. *Control of quantum phenomena: past, present and future*. [New J. Phys.](#) **12**, 075008 (2010).
- [2] M. H. Goerz, S. C. Carrasco and V. S. Malinovsky. *Quantum Optimal Control via Semi-Automatic Differentiation*. [Quantum](#) **6**, 871 (2022).

Usually, you would have this at the bottom of a page, as in [Home References](#).

Another possibility that is appropriate for [Citations in docstrings](#) is to write out a shortened bibliography "by hand".

Explicit references

A non-canonical `@bibliography` block can also be used to render a bibliography for a few specific citations keys:

```
``@bibliography
Pages = []
Canonical = false

BrifNJP2010
GoerzDiploma2010
GoerzPhd2015
```
```

renders a bibliography only for the references [BrifNJP2010](#), [GoerzDiploma2010](#), and [GoerzPhd2015](#):

- [1] C. Brif, R. Chakrabarti and H. Rabitz. *Control of quantum phenomena: past, present and future*. [New J. Phys.](#) **12**, 075008 (2010).
- [8] M. Goerz. *Optimization of a Controlled Phasegate for Ultracold Calcium Atoms in an Optical Lattice*. Diplomarbeit, Freie Universität Berlin (2010).
- [9] M. Goerz. *Optimizing Robust Quantum Gates in Open Quantum Systems*. Phd thesis, Universität Kassel (2015).

The `Pages = []` is required to exclude all other cited references. Note that the numbers [\[1, 8, 9\]](#) are from the main (canonical) [References](#) page.

### Order of references

In the default numeric style, references in a `@bibliography` are rendered (and numbered) in the order in which they are cited. When there are multiple pages in the documentation, the order in which the pages appear in the navigation bar is relevant.

Non-cited references ([\\* in a full bibliography](#)) will appear in the order they are listed in the underlying `.bib` file. That order may be changed by [sorting it explicitly](#):

```

bib = CitationBibliography("refs.bib")

using Bibliography
sort_bibliography!(bib.entries, :nyt) # name-year-title

```

In general, the citation style determines the order of the references, see the [Citation Style Gallery](#).

## 2.3 Syntax for the .bib file

The `refs.bib` file is in the standard [BibTeX format](#). It must be parsable by [BibParser.jl](#).

You will find that you get the best results by maintaining a `.bib` files by hand, specifically for a given project using `DocumenterCitations`. A `.bib` file that works well with LaTeX may or may not work well with `DocumenterCitations`: remember that in LaTeX, the strings inside any BibTeX fields are rendered through the TeX engine. At least in principle, they may contain arbitrary macros.

In contrast, for `DocumenterCitations`, the BibTeX fields are minimally processed to convert some common LaTeX constructs to plain text, but beyond that, they are used "as-is". In future versions, the handling of LaTeX macros may improve, but it is best not to rely on it, and instead edit the `.bib` file so that it gives good results with `DocumenterCitations` (see the tips below).

While we try to be reasonably compatible, "Any `.bib` file will render the bibliography you expect" is not a design goal, but "It is possible to write a `.bib` file so that you get exactly the bibliography you want" is.

Some tips to keep in mind when editing a `.bib` file to be used with `DocumenterCitations`:

- Use unicode instead of [escaped symbols](#).
- You do not need to use [braces to protect capitalization](#). `DocumenterCitations` is not always able to remove such braces. But, unlike `bibtex`, `DocumenterCitation` will preserve the capitalization of titles.
- Use a consistent scheme for citation keys. Shorter keys are better.
- All entries should have a `Doi` field, or a `Url` field if no DOI is available.
- Use `@string` macros for abbreviated journal names, with the caveat of [#31](#) and [#32](#) in the [BibParser.jl issues](#).

You may be interested in using (or forking) the [getbibtex script](#) to generate consistent `.bib` files.

### Preprint support

If the published paper (Doi link) is not open-access, but a version of the paper is available on a preprint server like the [arXiv](#), you are strongly encouraged to add the arXiv ID as `Eprint` in the BibTeX entry. In the rendered bibliography, the preprint information will be shown and automatically link to <https://arxiv.org/abs/<ID>>. If necessary, you may also add a `Primaryclass` field to indicate a category, see "[BibTeX and Eprints](#)" in the [arXiv documentation](#).

Note that unlike in [default](#) BibTeX, it is not necessary to define `Archiveprefix` in the `.bib` file. A missing `Archiveprefix` is assumed to be `arXiv`. The field name `Eprinttype` (which in BibTeX is an alias for `Archiveprefix`) is currently not yet supported, nor is `Eprintclass` as an alias for `Primaryclass`.

For documents that are available *only* as an arXiv eprint, the best result is obtained with a BibTeX entry using the `@article` class, with, e.g., `arXiv:2003.10132` in the `Journal` field, and, e.g., `10.48550/ARXIV.2003.10132` in the `Doi` field (but no `Eprint` field) [[10](#)].

Beyond arXiv, other preprint servers are supported. The `Archiveprefix` field for non-arXiv preprints is mandatory. For any defined `Archiveprefix`, `Eprint`, and `Primaryclass` fields, the rendered bibliography will include the preprint information in the format `ArchivePrefix:Eprint [Primaryclass]`. However, only certain preprint servers (known `ArchivePrefix`) will automatically be linked. Besides arXiv, the currently supported preprint servers are:

- **BiorXiv**. The `Archiveprefix` is `biorXiv`. The `Eprint` ID should be the final part of the DOI, e.g. `2022.09.09.507322` [11].
- **HAL**. The `Archiveprefix` is `HAL`. The `Eprint` ID should include the prefix (usually `hal-`, but sometimes `tel-`, etc.), e.g., Refs. [12, 13].

If you would like support for any additional preprint server, [please open an issue](#).

## Chapter 3

# Citation Style Gallery

The citation style is determined when instantiating the `CitationBibliography`, via the `style` argument.

The built-in styles are:

- `style=:numeric` (default): [numeric style](#)
- `style=:authoryear`: [author-year style](#)
- `style=:alpha`: [alphabetic style](#)

### 3.1 Numeric style

This is the default style (`style=:numeric`) used throughout the other pages of this documentation, cf. the [Syntax](#) examples.

- `[GoerzQ2022](@cite)` renders as "[2]"
- `[FuerstNJP2014](@cite)` renders as "[14]"
- `[GoerzQ2022](@citet)` renders as "Goerz *et al.* [2]"
- `[GoerzQ2022](@citep)` renders as "[2]" — `@citep` is the same as `@cite` for this style
- `[GoerzQ2022; Eq. (1)](@cite)` renders as "[2, Eq. (1)]"
- `[GoerzQ2022; Eq. (1)](@citet)` renders as "Goerz *et al.* [2], Eq. (1)"
- `[GoerzQ2022](@citet*)` renders as "Goerz, Carrasco and Malinovsky [2]"
- `[GoerzQ2022; Eq. (1)](@citet*)` renders as "Goerz, Carrasco and Malinovsky [2], Eq. (1)"
- `[WinckelIP2008](@citet)` renders as "von Winckel and Borzi [7]"
- `[WinckelIP2008](@Citet)` renders as "Von Winckel and Borzi [7]"
- `[BrumerShapiro2003, BrifNJP2010, Shapiro2012, KochJPCM2016; and references therein](@cite)` renders as "[1, 4–6, and references therein]"
- `[BrumerShapiro2003, BrifNJP2010, Shapiro2012, KochJPCM2016; and references therein](@Citet)` renders as "Brumer and Shapiro [4], Brif *et al.* [1], Shapiro and Brumer [5], Koch [6], and references therein"

- [arbitrary text](@cite GoerzQ2022) renders as "arbitrary text"

### References:

- [1] C. Brif, R. Chakrabarti and H. Rabitz. *Control of quantum phenomena: past, present and future*. *New J. Phys.* **12**, 075008 (2010).
- [2] M. H. Goerz, S. C. Carrasco and V. S. Malinovsky. *Quantum Optimal Control via Semi-Automatic Differentiation*. *Quantum* **6**, 871 (2022).
- [4] P. Brumer and M. Shapiro. *Principles and Applications of the Quantum Control of Molecular Processes*. Wiley Interscience (2003).
- [5] M. Shapiro and P. Brumer. *Quantum Control of Molecular Processes*. Wiley and Sons (2012).
- [6] C. P. Koch. *Controlling open quantum systems: tools, achievements, and limitations*. *J. Phys.: Condens. Matter* **28**, 213001 (2016).
- [7] G. von Winckel and A. Borzi. *Computational techniques for a quantum control problem with  $H^1$ -cost*. *Inverse Problems* **24**, 034007 (2008).
- [14] H. A. Fürst, M. H. Goerz, U. G. Poschinger, M. Murphy, S. Montangero, T. Calarco, F. Schmidt-Kaler, K. Singer and C. P. Koch. *Controlling the transport of an ion: Classical and quantum mechanical solutions*. *New J. Phys.* **16**, 075007 (2014). Special issue on coherent control of complex quantum systems.

## 3.2 Author-year style

The author-year style (style=:authoryear) formats citations with the author name and publication year. This is the citation style used, e.g., in *Rev. Mod. Phys.* (rmp option in REVTeX). The bibliography is sorted alphabetically by author name. The default @cite command is parenthetical (@cite and @citep are equivalent) which is different from the authoryear style in natbib.

- [GoerzQ2022](@cite) renders as "(Goerz *et al.*, 2022)"
- [FuerstNJP2014](@cite) renders as "(Fürst *et al.*, 2014)"
- [GoerzQ2022](@citet) renders as "Goerz *et al.* (2022)"
- [GoerzQ2022](@citep) renders as "(Goerz *et al.*, 2022)" — @citep is the same as @cite for this style
- [GoerzQ2022; Eq. (1)](@cite) renders as "(Goerz *et al.*, 2022; Eq. (1))"
- [GoerzQ2022; Eq. (1)](@citet) renders as "Goerz *et al.* (2022), Eq. (1)"
- [GoerzQ2022](@cite\*) renders as "(Goerz, Carrasco and Malinovsky, 2022)"
- [GoerzQ2022](@citet\*) renders as "Goerz, Carrasco and Malinovsky (2022)"
- [GoerzQ2022; Eq. (1)](@cite\*) renders as "(Goerz, Carrasco and Malinovsky, 2022; Eq. (1))"
- [GoerzQ2022; Eq. (1)](@citet\*) renders as "Goerz, Carrasco and Malinovsky (2022), Eq. (1)"
- [WinckelIP2008](@citet) renders as "von Winckel and Borzi (2008)"
- [WinckelIP2008](@Citet) renders as "Von Winckel and Borzi (2008)"

- [BrumerShapiro2003, BrifNJP2010, Shapiro2012, KochJPCM2016; and references therein](@cite) renders as "(Brumer and Shapiro, 2003; Brif *et al.*, 2010; Shapiro and Brumer, 2012; Koch, 2016; and references therein)"
- [BrumerShapiro2003, BrifNJP2010, Shapiro2012, KochJPCM2016; and references therein](@Citet) renders as "Brumer and Shapiro (2003), Brif *et al.* (2010), Shapiro and Brumer (2012), Koch (2016), and references therein"
- [arbitrary text](@cite GoerzQ2022) renders as "arbitrary text"

### References:

- Brif, C.; Chakrabarti, R. and Rabitz, H. (2010). *Control of quantum phenomena: past, present and future*. *New J. Phys.* **12**, 075008.
- Brumer, P. and Shapiro, M. (2003). *Principles and Applications of the Quantum Control of Molecular Processes*. Wiley Interscience.
- Fürst, H. A.; Goerz, M. H.; Poschinger, U. G.; Murphy, M.; Montangelo, S.; Calarco, T.; Schmidt-Kaler, F.; Singer, K. and Koch, C. P. (2014). *Controlling the transport of an ion: Classical and quantum mechanical solutions*. *New J. Phys.* **16**, 075007. Special issue on coherent control of complex quantum systems.
- Goerz, M. H.; Carrasco, S. C. and Malinovsky, V. S. (2022). *Quantum Optimal Control via Semi-Automatic Differentiation*. *Quantum* **6**, 871.
- Koch, C. P. (2016). *Controlling open quantum systems: tools, achievements, and limitations*. *J. Phys.: Condens. Matter* **28**, 213001.
- Shapiro, M. and Brumer, P. (2012). *Quantum Control of Molecular Processes*. Wiley and Sons.
- von Winckel, G. and Borzi, A. (2008). *Computational techniques for a quantum control problem with  $H^1$ -cost*. *Inverse Problems* **24**, 034007.

### 3.3 Alphabetic style

The style=:alpha formats citations and references like :numeric, except that it uses labels derived from the author names and publication year and sorts the references alphabetically.

- [GoerzQ2022](@cite) renders as "[GCM22]"
- [FuerstNJP2014](@cite) renders as "[FGP+14]"
- [GoerzQ2022](@citet) renders as "Goerz *et al.* [GCM22]"
- [GoerzQ2022](@citep) renders as "[GCM22]" — @citep is the same as @cite for this style
- [GoerzQ2022; Eq. (1)](@cite) renders as "[GCM22, Eq. (1)]"
- [GoerzQ2022; Eq. (1)](@citet) renders as "Goerz *et al.* [GCM22], Eq. (1)"
- [GoerzQ2022](@citet\*) renders as "Goerz, Carrasco and Malinovsky [GCM22]"
- [GoerzQ2022; Eq. (1)](@citet\*) renders as "Goerz, Carrasco and Malinovsky [GCM22], Eq. (1)"
- [WinckelIP2008](@citet) renders as "von Winckel and Borzi [vWB08]"
- [WinckelIP2008](@Citet) renders as "Von Winckel and Borzi [vWB08]"

- [BrumerShapiro2003, BrifNJP2010, Shapiro2012, KochJPCM2016; and references therein](@cite) renders as "[BS03, BCR10, SB12, Koc16, and references therein]". Note that unlike for style=:numeric, the citations are not compressed.
- [BrumerShapiro2003, BrifNJP2010, Shapiro2012, KochJPCM2016; and references therein](@Citet) renders as "Brumer and Shapiro [BS03], Brif *et al.* [BCR10], Shapiro and Brumer [SB12], Koch [Koc16], and references therein"
- [arbitrary text](@cite GoerzQ2022) renders as "arbitrary text"

### References:

- [BCR10] C. Brif, R. Chakrabarti and H. Rabitz. *Control of quantum phenomena: past, present and future*. *New J. Phys.* **12**, 075008 (2010).
- [BS03] P. Brumer and M. Shapiro. *Principles and Applications of the Quantum Control of Molecular Processes*. Wiley Interscience (2003).
- [FGP+14] H. A. Fürst, M. H. Goerz, U. G. Poschinger, M. Murphy, S. Montangero, T. Calarco, F. Schmidt-Kaler, K. Singer and C. P. Koch. *Controlling the transport of an ion: Classical and quantum mechanical solutions*. *New J. Phys.* **16**, 075007 (2014). Special issue on coherent control of complex quantum systems.
- [GCM22] M. H. Goerz, S. C. Carrasco and V. S. Malinovsky. *Quantum Optimal Control via Semi-Automatic Differentiation*. *Quantum* **6**, 871 (2022).
- [Koc16] C. P. Koch. *Controlling open quantum systems: tools, achievements, and limitations*. *J. Phys.: Condens. Matter* **28**, 213001 (2016).
- [SB12] M. Shapiro and P. Brumer. *Quantum Control of Molecular Processes*. Wiley and Sons (2012).
- [vWB08] G. von Winckel and A. Borzì. *Computational techniques for a quantum control problem with  $H^1$ -cost*. *Inverse Problems* **24**, 034007 (2008).

Compared to the HTML version of the documentation, the hanging indent in the above list of references is too small for the longer labels of the :alpha style. This can be remedied by adjusting the `dL_hangindent` and `dL_labelwidth` parameters with `DocumenterCitations.set_latex_options`.

Note that the :alpha style is able to automatically disambiguate labels:

- [GBR+07a] M. Grace, C. Brif, H. Rabitz, I. A. Walmsley, R. L. Kosut and D. A. Lidar. *Optimal control of quantum gates and suppression of decoherence in a system of interacting two-level particles*. *J. Phys. B* **40**, S103 (2007), [arXiv:quant-ph/0702147](https://arxiv.org/abs/quant-ph/0702147).
- [GBR+07b] M. D. Grace, C. Brif, H. Rabitz, D. A. Lidar, I. A. Walmsley and R. L. Kosut. *Fidelity of optimally controlled quantum gates with randomly coupled multiparticle environments*. *J. Mod. Opt.* **54**, 2339 (2007), [arXiv:0712.2935](https://arxiv.org/abs/0712.2935).

This works because the DocumenterCitations plugin automatically upgrades style=:alpha to the internal DocumenterCitations.AlphaStyle - Type.

"Smart" alphabetic citation style (relative to the "dumb" :alpha).

```
style = AlphaStyle()
```

instantiates a style for `CitationBibliography` that avoids duplicate labels. Any of the entries that would result in the same label will be disambiguated by appending the suffix "a", "b", etc.

Any bibliography that cites a subset of the given entries is guaranteed to have unique labels.

[source](#)

### 3.4 Custom styles

In the following, we show two examples for user-defined styles. See the [notes on customization](#) on how to generally define a custom style.

#### Custom style: enumerated author-year

In this example, the `:authoryear` style is used, but the references are shown in an enumerated list.

```
import DocumenterCitations

function DocumenterCitations.format_bibliography_reference(
 style::Val{:enumauthoryear},
 entry
)
 text = DocumenterCitations.format_authoryear_bibliography_reference(style, entry)
 return uppercasefirst(text)
end

DocumenterCitations.format_citation(style::Val{:enumauthoryear}, args...) =
 DocumenterCitations.format_authoryear_citation(style, args...)

DocumenterCitations.bib_sorting(::Val{:enumauthoryear}) = :nyt # name, year, title

DocumenterCitations.bib_html_list_style(::Val{:enumauthoryear}) = :ol
```

The important part of the definition is in the last line, indicating that the References should be shown as an enumeration (ordered list, `<ol>`, in HTML), see below. Meanwhile, citations render exactly as with `style=:authoryear`:

- `[GoerzQ2022](@cite)` renders as "(Goerz *et al.*, 2022)"
- `[FuerstNJP2014](@cite)` renders as "(Fürst *et al.*, 2014)"
- `[WinckelIP2008](@Citet)` renders as "Von Winckel and Borzi (2008)"

#### References:

1. Brif, C.; Chakrabarti, R. and Rabitz, H. (2010). *Control of quantum phenomena: past, present and future*. *New J. Phys.* **12**, 075008.
2. Brumer, P. and Shapiro, M. (2003). *Principles and Applications of the Quantum Control of Molecular Processes*. Wiley Interscience.
3. Fürst, H. A.; Goerz, M. H.; Poschinger, U. G.; Murphy, M.; Montangero, S.; Calarco, T.; Schmidt-Kaler, F.; Singer, K. and Koch, C. P. (2014). *Controlling the transport of an ion: Classical and quantum mechanical solutions*. *New J. Phys.* **16**, 075007. Special issue on coherent control of complex quantum systems.
4. Goerz, M. H.; Carrasco, S. C. and Malinovsky, V. S. (2022). *Quantum Optimal Control via Semi-Automatic Differentiation*. *Quantum* **6**, 871.
5. Koch, C. P. (2016). *Controlling open quantum systems: tools, achievements, and limitations*. *J. Phys.: Condens. Matter* **28**, 213001.

6. Shapiro, M. and Brumer, P. (2012). *Quantum Control of Molecular Processes*. Wiley and Sons.
7. Von Winckel, G. and Borzi, A. (2008). *Computational techniques for a quantum control problem with  $H^1$ -cost*. *Inverse Problems* **24**, 034007.

### Custom style: Citation-key labels

In this less trivial example, a style similar to `:alpha` is used, using the citation keys in the `.bib` file as labels. This would be somewhat more appropriate with citation keys that are shorter than the ones used here (keys similar to those automatically generated with the `:alpha` style).

```
import DocumenterCitations

DocumenterCitations.format_bibliography_reference(style::Val{:keylabels}, entry) =
 DocumenterCitations.format_labeled_bibliography_reference(style, entry)

function DocumenterCitations.format_bibliography_label(::Val{:keylabels}, entry, citations)
 return "[$(entry.id)]"
end

function DocumenterCitations.format_citation(
 style::Val{:keylabels},
 cit,
 entries,
 citations
)
 return DocumenterCitations.format_labeled_citation(style, cit, entries, citations)
 # The only difference compared to `:alpha` is the citation label, which is
 # picked up automatically by redefining `citation_label` below.
end

function DocumenterCitations.citation_label(style::Val{:keylabels}, entry, citations; ...)
 return entry.id
end

DocumenterCitations.bib_sorting(::Val{:keylabels}) = :nyt # name, year, title

DocumenterCitations.bib_html_list_style(::Val{:keylabels}) = :dl
```

- `[GoerzQ2022](@cite)` renders as "[\[GoerzQ2022\]](#)"
- `[FuerstNJP2014](@cite)` renders as "[\[FuerstNJP2014\]](#)"
- `[GoerzQ2022](@citet)` renders as "[Goerz et al. \[GoerzQ2022\]](#)"
- `[GoerzQ2022](@citep)` renders as "[\[GoerzQ2022\]](#)" — `@citep` is the same as `@cite` for this style
- `[GoerzQ2022; Eq. (1)](@cite)` renders as "[\[GoerzQ2022, Eq. \(1\)\]](#)"
- `[GoerzQ2022; Eq. (1)](@citet)` renders as "[Goerz et al. \[GoerzQ2022\], Eq. \(1\)](#)"
- `[GoerzQ2022](@citet*)` renders as "[Goerz, Carrasco and Malinovsky \[GoerzQ2022\]](#)"

- [GoerzQ2022; Eq. (1)](@citet\*) renders as "Goerz, Carrasco and Malinovsky [GoerzQ2022], Eq. (1)"
- [WinckelIP2008](@citet) renders as "von Winckel and Borzi [WinckelIP2008]"
- [WinckelIP2008](@Citet) renders as "Von Winckel and Borzi [WinckelIP2008]"
- [arbitrary text](@cite GoerzQ2022) renders as "arbitrary text"

### References:

- [BrifNJP2010] C. Brif, R. Chakrabarti and H. Rabitz. *Control of quantum phenomena: past, present and future*. *New J. Phys.* **12**, 075008 (2010).
- [BrumerShapiro2003] P. Brumer and M. Shapiro. *Principles and Applications of the Quantum Control of Molecular Processes*. Wiley Interscience (2003).
- [FuerstNJP2014] H. A. Fürst, M. H. Goerz, U. G. Poschinger, M. Murphy, S. Montangero, T. Calarco, F. Schmidt-Kaler, K. Singer and C. P. Koch. *Controlling the transport of an ion: Classical and quantum mechanical solutions*. *New J. Phys.* **16**, 075007 (2014). Special issue on coherent control of complex quantum systems.
- [GoerzQ2022] M. H. Goerz, S. C. Carrasco and V. S. Malinovsky. *Quantum Optimal Control via Semi-Automatic Differentiation*. *Quantum* **6**, 871 (2022).
- [KochJPCM2016] C. P. Koch. *Controlling open quantum systems: tools, achievements, and limitations*. *J. Phys.: Condens. Matter* **28**, 213001 (2016).
- [Shapiro2012] M. Shapiro and P. Brumer. *Quantum Control of Molecular Processes*. Wiley and Sons (2012).
- [WinckelIP2008] G. von Winckel and A. Borzi. *Computational techniques for a quantum control problem with  $H^1$ -cost*. *Inverse Problems* **24**, 034007 (2008).

As with the `:alpha` style, for  $\LaTeX$  output, the `dL_hangingindent` and `dL_labelwidth` parameters should be adjusted with `DocumenterCitations.set_latex_options` to obtain a more suitable hanging indent that matches the HTML version of this documentation.

## Chapter 4

# CSS Styling

For optimal rendering of the bibliography, place a file `citations.css` in the `docs/src/assets` folder of your project, containing, e.g.,

```
.citation dl {
 display: grid;
 grid-template-columns: max-content auto; }
.citation dt {
 grid-column-start: 1; }
.citation dd {
 grid-column-start: 2;
 margin-bottom: 0.75em; }
.citation ul {
 padding: 0 0 2.25em 0;
 margin: 0;
 list-style: none;}
.citation ul li {
 text-indent: -2.25em;
 margin: 0.33em 0.5em 0.5em 2.25em;}
.citation ol li {
 padding-left:0.75em;}
```

The HTML generated by `DocumenterCitations` also uses CSS classes `canonical` and `noncanonical` to distinguish between `canonical` and `non-canonical` blocks. While these are not used in the above `citations.css`, a custom `citations.css` could implement different formatting for the two types of bibliographies.

The `citations.css` file must be listed as an asset for `Documenter.HTML` in `docs/make.jl`:

```
makedocs(;
 format = Documenter.HTML(
 # ...
 assets=String["assets/citations.css"],
),
 plugins=[bib],
 # ...
)
```

## Chapter 5

# Internals

`DocumenterCitations.CitationBibliography` - Type.

Plugin for enabling bibliographic citations in Documenter.jl.

```
bib = CitationBibliography(bibfile; style=:numeric)
```

instantiates a plugin object that must be passed as an element of the `plugins` keyword argument to `Documenter.makedocs`.

### Arguments

- `bibfile`: the name of the `BibTeX` file from which to read the data.
- `style`: the style to use for the bibliography and all citations. The available built-in styles are `:numeric` (default), `:authoryear`, and `:alpha`. With user-defined styles, this may be an arbitrary name or object.

### Internal fields

The following internal fields are used by the citation pipeline steps. These should not be considered part of the stable API.

- `entries`: dict of citation keys to entries in `bibfile`
- `citations`: ordered dict of citation key to citation number
- `page_citations`: dict of page file name to set of citation keys cited on page.
- `anchor_map`: an `AnchorMap` object that keeps track of the link anchors for references in bibliography blocks

[source](#)

## 5.1 Citation Pipeline

The `DocumenterCitations.CitationBibliography` plugin hooks into the `Documenter.Builder.DocumentPipeline`<sup>1</sup> between `ExpandTemplates` (which expands `@docs` blocks) and `CrossReferences`. The plugin adds the following three steps:

---

<sup>1</sup>See the documentation of `Documenter.Selectors` for an explanation of Documenter's pipeline concept.

1. [CollectCitations](#)
2. [ExpandBibliography](#)
3. [ExpandCitations](#)

`DocumenterCitations.CollectCitations` - Type.

Pipeline step to collect citations from all pages.

It walks all pages in the order they appear in the navigation bar, looking for `@cite` links. It fills the `citations` and `page_citations` attributes of the internal [CitationBibliography](#) object.

Thus, the order in which `CollectCitations` encounters citations determines the numerical key that will appear in the rendered documentation (see [ExpandBibliography](#) and [ExpandCitations](#)).

[source](#)

`DocumenterCitations.ExpandBibliography` - Type.

Pipeline step to expand all `@bibliography` blocks.

Runs after [CollectCitations](#) but before [ExpandCitations](#).

Each bibliography is rendered into HTML as a [definition list](#), a [bullet list](#), or an [enumeration](#) depending on [bib\\_html\\_list\\_style](#).

For a definition list, the label for each list item is rendered via [format\\_bibliography\\_label](#) and the full bibliographic reference is rendered via [format\\_bibliography\\_reference](#).

For bullet lists or enumerations, [format\\_bibliography\\_label](#) is not used and [format\\_bibliography\\_reference](#) fully determines the entry.

The order of the entries in the bibliography is determined by the [bib\\_sorting](#) method for the chosen citation style.

The `ExpandBibliography` step runs [init\\_bibliography!](#) before expanding the first `@bibliography` block.

[source](#)

`DocumenterCitations.ExpandCitations` - Type.

Pipeline step to expand all `@cite` citations.

This runs after [ExpandBibliography](#), as it relies on the link targets in the expanded `@bibliography` blocks.

All citations are formatted using [format\\_citation](#).

[source](#)

## 5.2 Customization

A custom style can be created by defining methods for the functions listed below that specialize for a user-defined style argument to [CitationBibliography](#). If the style is identified by a simple name, e.g. `:mystyle`, the methods should specialize on `Val{:mystyle}`, see the [examples for custom styles](#). Beyond that, e.g., if the style needs to implement options or needs to maintain internal state to manage unique citation labels, style can be an object of a custom type. The builtin [DocumenterCitations.AlphaStyle](#) is an example for such a "stateful" style, initialized via a custom [init\\_bibliography!](#) method.

`DocumenterCitations.bib_html_list_style` - Function.

Identify the type of HTML list associated with a bibliographic style.

```
bib_html_list_style(style)
```

must return one of

- :dl (definition list),
- :ul (unordered / bullet list), or
- :ol (ordered list / enumeration),

for any style that `CitationBibliography` is instantiated with.

[source](#)

`DocumenterCitations.bib_sorting` - Function.

Identify the sorting associated with a bibliographic style.

```
bib_sorting(style)
```

must return `:citation` or any of the `sorting_rules` accepted by `Bibliography.sort_bibliography!`, e.g. `:nyt`.

[source](#)

`DocumenterCitations.format_bibliography_label` - Function.

Format the label for an entry in a `@bibliography` block.

```
mdstr = format_bibliography_label(style, entry, citations)
```

produces a plain text (technically, markdown) string for the label in the bibliography for the given `Bibliography.Entry`. The `citations` argument is a dict that maps citation keys (`entry.id`) to the order in which citations appear in the documentation, i.e., a numeric citation key.

For the default `style=:numeric`, this returns a label that is the numeric citation key in square brackets, cf. `format_citation`. In general, this function is used only if `bib_html_list_style` returns `:dl` for the given style.

[source](#)

`DocumenterCitations.format_bibliography_reference` - Function.

Format the full reference for an entry in a `@bibliography` block.

```
mdstr = format_bibliography_reference(style, entry)
```

produces a markdown string for the full reference of a `Bibliography.Entry`. For the default `style=:numeric`, the result is formatted like in `REVTeX` and `APS journals`. That is, the full list of authors with initials for the first names, the italicized title, and the journal reference (linking to the DOI, if available), ending with the publication year in parenthesis.

[source](#)

`DocumenterCitations.format_citation` - Function.

Expand a [CitationLink](#) into style-specific markdown code.

```
md_text = format_citation(style, cit, entries, citations)
```

returns a string of markdown code that replaces the original citation link, rendering it for the given style. The resulting markdown code should make use of direct citation links (cf. [DirectCitationLink](#)).

For example, for the default style,

```
using DocumenterCitations: format_citation, CitationLink, example_bibfile
using Bibliography

cit = CitationLink("[BrifNJP2010, Shapiro2012; and references therein](@cite)")
entries = Bibliography.import_bibtex(example_bibfile)
citations = Dict("BrifNJP2010" => 1, "Shapiro2012" => 2)

format_citation(:numeric, cit, entries, citations)

output

"[[1](@cite BrifNJP2010), [2](@cite Shapiro2012), and references therein]"
```

### Arguments

- `style`: The style to render the citation in, as passed to [CitationBibliography](#)
- `cit`: A [CitationLink](#) instance representing the original citation link
- `entries`: A dict mapping citations keys to a [Bibliography.Entry](#)
- `citations`: A dict mapping that maps citation keys to the order in which citations appear in the documentation, i.e., a numeric citation index.

### source

`DocumenterCitations.init_bibliography!` - Function.

Initialize any internal state for rendering the bibliography.

```
init_bibliography!(style, bib)
```

is called at the beginning of the [ExpandBibliography](#) pipeline step. It may mutate internal fields of `style` or `bib` to prepare for the rendering of bibliography blocks.

For the default style, this does nothing.

For, e.g., [AlphaStyle](#), the call to `init_bibliography!` determines the citation labels, by generating unique suffixed labels for all the entries in the underlying `.bib` file (`bib.entries`), and storing the result in an internal attribute of the style object.

Custom styles may implement a new method for `init_bibliography!` for similar purposes. It can be assumed that all the internal fields of the [CitationBibliography](#) `bib` object are up-to-date according to the citations seen by the earlier [CollectCitations](#) step.

### source

### Auxiliary customization routines

The following routines are used by the default styles to implement specific formatting. They may be reused by custom styles.

`DocumenterCitations.format_labeled_citation` - Function.

Format a citation as in a "labeled" style.

```
md = format_labeled_citation(
 style, cit, entries, citations;
 sort_and_collapse=true,
 brackets="[]",
 names=:lastonly,
 notfound="?",
)
```

may be used when implementing `format_citation` for custom styles, to render the given `CitationLink` object `cit` in a format similar to the built-in `:numeric` and `:alpha` styles.

#### Options

- `sort_and_collapse`: whether to sort and collapse combined citations, e.g. [1-3] instead of [2,1,3]. Not applicable to `@citet`.
- `brackets`: characters to use to enclose citation labels
- `namesfmt`: How to format the author names in `@citet` (`:full`, `:last`, `:lastonly`)
- `notfound`: citation label to use for a citation to a non-existing entry

Beyond the above options, defining a custom `citation_label` method for the style controls the label to be used (e.g., the citation number for the default `:numeric` style.)

[source](#)

`DocumenterCitations.format_authoryear_citation` - Function.

Format a citation as in the `:authoryear` style.

```
md = format_authoryear_citation(
 style, cit, entries, citations;
 empty_names="Anonymous",
 empty_year="undated",
 parenthesis="()",
 notfound="???",
)
```

may be used when implementing `format_citation` for custom styles, to render the given `CitationLink` object `cit` in a format similar to the built-in `:authoryear` style.

#### Options

- `namesfmt`: How to format the author names (`:full`, `:last`, `:lastonly`)
- `empty_names`: String to use as "author" when the entry defines no author
- `empty_year`: String to use as "year" when the entry defines no year

- parenthesis: The parenthesis symbols to use for @cite/@citep
- notfound: How to render a citation without a corresponding entry

#### source

DocumenterCitations.citation\_label - Function.

Return a citation label.

```
label = citation_label(style, entry, citations; notfound="?")
```

returns the label used in citations and the bibliography for the given entry in the given style. Used by `format_labeled_citation`, and thus by the built-in styles `:numeric` and `:alpha`.

For the default `:numeric` style, this returns the citation number (as found by looking up `entry.id` in the `citations` dict) as a string.

May return `notfound` if the citation label cannot be determined.

#### source

DocumenterCitations.format\_labeled\_bibliography\_reference - Function.

Format a bibliography reference as in a "labeled" style.

```
mdstr = format_labeled_bibliography_reference(style, entry; namesfmt=:last)
```

#### Options

- namesfmt: How to format the author names (`:full`, `:last`, `:lastonly`)

#### source

DocumenterCitations.format\_authoryear\_bibliography\_reference - Function.

Format a bibliography reference as for the `:authoryear` style.

```
mdstr = format_authoryear_bibliography_reference(
 style, entry; namesfmt=:lastfirst, empty_names="-"
)
```

#### Options

- namesfmt: How to format the author names (`:full`, `:last`, `:lastonly`)
- empty\_names: String to use in place of the authors if there are no authors

#### source

### Customizing LaTeX output

DocumenterCitations.set\_latex\_options - Function.

Set options for how bibliographies are written via `Documenter.LaTeXWriter`.

```
DocumenterCitations.set_latex_options(; options...)
```

Valid options that can be passed as keyword arguments are:

- `ul_as_hanging`: If `true` (default), format unordered bibliography lists (`:ul` returned by `DocumenterCitations.bib_html_list_style`) as a list of paragraphs with hanging indent. This matches the recommended CSS styling for HTML `:ul` bibliographies, see [CSS Styling](#). If `false`, the bibliography will be rendered as a standard bulleted list.
- `ul_hangindent`: If `ul_as_hanging=true`, the amount of hanging indent. Must be a string that specifies a valid [LaTeX length](#), e.g., `"0.33in"`
- `dl_hangindent`: Bibliographies that should render as "definition lists" (`:dl` returned by `DocumenterCitations.bib_html_list_style`) are emulated as a list of paragraphs with a fixed label width and hanging indent. The amount of hanging indent is specified with `dl_hangindent`, cf. `ul_hangindent`.
- `dl_labelwidth`: The minimum width to use for the "label" in a bibliography rendered in the `:dl` style.
- `bib_blockformat`: A LaTeX format command to apply for a bibliography block. Defaults to `"\raggedright"`, which avoids hyphenation within the bibliography. If set to an empty string, let LaTeX decide the default, which will generally result in fully justified text, with hyphenation.

These should be considered experimental and not part of the the stable API.

Options that are not specified remain unchanged from the defaults, respectively a previous call to `set_latex_options`.

For bibliography blocks rendered in a `:dl` style, setting `dl_hangindent` and `dl_labelwidth` to the same value (slightly larger than the width of the longest label) produces results similar to the recommended styling in HTML, see [CSS Styling](#). For very long citation labels, it may look better to have a smaller `dl_hangindent`.

Throws an `ArgumentError` if called with invalid options.

The defaults can be reset with `DocumenterCitations.reset_latex_options`.

[source](#)

`DocumenterCitations.reset_latex_options` - Function.

Reset the options for how bibliographies are written in LaTeX.

```
DocumenterCitations.reset_latex_options()
```

is equivalent to the following call to `set_latex_options`:

```
set_latex_options(;
 ul_as_hanging=true,
 ul_hangindent="0.33in",
 dl_hangindent="0.33in",
 dl_labelwidth="0.33in",
 bib_blockformat="\raggedright",
)
```

[source](#)

## Citation links

The standard citation links described in [Syntax](#) are internally parsed into the `DocumenterCitations.CitationLink` data structure:

`DocumenterCitations.CitationLink` - Type.

Data structure representing a general (non-direct) citation link.

```
cit = CitationLink(link)
```

parses the given link string, e.g. "[GoerzQ2022](@cite)".

### Attributes

- `node`: The `MarkdownAST.Node` that link parses into
- `keys`: A list of BibTeX keys being cited. e.g., ["BrumerShapiro2003", "BrifNJP2010"] for the citation "[BrumerShapiro2003,BrifNJP2010; and references therein](@cite)"
- `cmd`: The citation command, one of `:cite`, `:citet`, `:citep`, or (unsupported in the default styles) `:citealt`, `:citealp`, `:citenum`. Note that, e.g., "[Goerz@2022](@Citet\*)" results in `cite_cmd=:citet`
- `note`: A citation note, e.g. "Eq. (1)" in "[GoerzQ2022; Eq. (1)](@cite)"
- `capitalize`: Whether the citation should be formatted to appear at the start of a sentence, as indicated by a capitalized `@Cite...` command, e.g., "[GoerzQ2022](@Citet)"
- `starred`: Whether the citation should be rendered in "extended" form, i.e., with the full list of authors, as indicated by a `*` in the citation, e.g., "[Goerz@2022](@Citet\*)"

### See also

- [DirectCitationLink](#) - data structure for direct citation links of the form `[text](@cite key)`.

### source

Note that this does not include direct citation links such as `[the Semi-AD paper](@cite GoerzQ2022)`, which are instead parsed into `DocumenterCitations.DirectCitationLink`:

`DocumenterCitations.DirectCitationLink` - Type.

Data structure representing a direct citation link.

```
cit = DirectCitationLink(link)
```

parses the given link string of the form `[text](@cite key)`.

### Attributes

- `node`: The `MarkdownAST.Node` that link parses into
- `key`: The BibTeX key being cited. Note that unlike [CitationLink](#), a `DirectCitationLink` can only reference a single key

### See also

- [CitationLink](#) - data structure for non-direct citation links.

### source

### **5.3 Debugging**

Set the environment variable `JULIA_DEBUG=Documenter,DocumenterCitations` before generating the documentation.

## Chapter 6

# References

### 6.1 Cited References

The following references are cited in the documentation. The bibliography is produced with

```
``@bibliography
``
```

- [1] C. Brif, R. Chakrabarti and H. Rabitz. *Control of quantum phenomena: past, present and future*. *New J. Phys.* **12**, 075008 (2010).
- [2] M. H. Goerz, S. C. Carrasco and V. S. Malinovsky. *Quantum Optimal Control via Semi-Automatic Differentiation*. *Quantum* **6**, 871 (2022).
- [3] D. J. Tannor. *Introduction to Quantum Mechanics: A Time-Dependent Perspective*. University Science Books, Sausalito, California (2007).
- [4] P. Brumer and M. Shapiro. *Principles and Applications of the Quantum Control of Molecular Processes*. Wiley Interscience (2003).
- [5] M. Shapiro and P. Brumer. *Quantum Control of Molecular Processes*. *Wiley and Sons* (2012).
- [6] C. P. Koch. *Controlling open quantum systems: tools, achievements, and limitations*. *J. Phys.: Condens. Matter* **28**, 213001 (2016).
- [7] G. von Winckel and A. Borzi. *Computational techniques for a quantum control problem with  $H^1$ -cost*. *Inverse Problems* **24**, 034007 (2008).
- [8] M. Goerz. *Optimization of a Controlled Phasegate for Ultracold Calcium Atoms in an Optical Lattice*. Diplomarbeit, Freie Universität Berlin (2010).
- [9] M. Goerz. *Optimizing Robust Quantum Gates in Open Quantum Systems*. Phd thesis, Universität Kassel (2015).
- [10] F. K. Wilhelm, S. Kirchhoff, S. Machnes, N. Wittler and D. Sugny. *An introduction into optimal control for quantum technologies*, *arXiv:2003.10132* (2020).
- [11] E. A. Katrukha, M. Mikhaylova, H. X. van Brakel, P. M. van Bergen en Henegouwen, A. Akhmanova, C. C. Hoogenraad and L. C. Kapitein. *Probing cytoskeletal modulation of passive and active intracellular dynamics using nanobody-functionalized quantum dots*. *Nat. Commun.* **8**, 14772 (2017), [biorXiv:089284](https://arxiv.org/abs/089284).
- [12] F. Sauvage and F. Mintert. *Optimal Quantum Control with Poor Statistics*. *PRX Quantum* **1**, 020322 (2020). HAL:hal-03612955.

- [13] E. Brion. *Contrôle Quantique et Protection de la Cohérence par effet Zénon, Applications à l'Informatique Quantique*. Phd thesis, Université Pierre et Marie Curie - Paris VI (2014). [HAL:tel-00007910v2](#).
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## 6.2 Other References

The following are non-cited references (everything in the `.bib` file), included here to show how bibliographies are rendered for various types of materials. The list of references is produced with

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