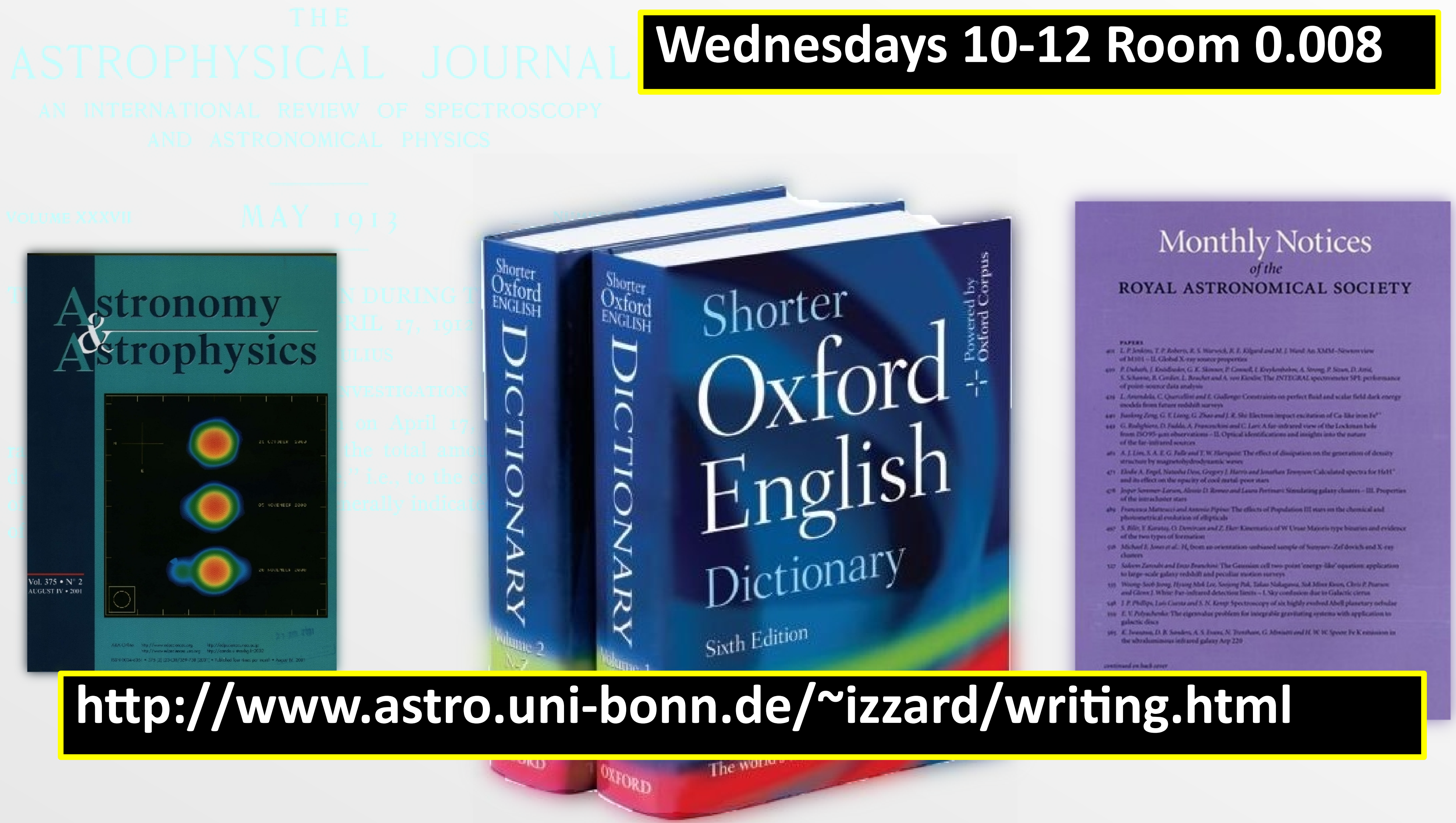
# Scientific Writing 6951

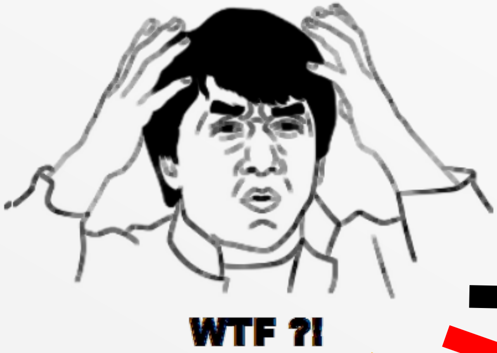
**Wednesdays 10-12 Room 0.008**


THE ASTROPHYSICAL JOURNAL
AN INTERNATIONAL REVIEW OF SPECTROSCOPY AND ASTRONOMICAL PHYSICS
VOLUME XXXVII
MAY 1913
Astronomy & Astrophysics
Vol. 375 • N° 2
AUGUST IV • 2001
Shorter Oxford English Dictionary
Sixth Edition
Powered by Oxford Corpus
DICTIONARY
Volume 1
Volume 2
OXFORD
Monthly Notices of the ROYAL ASTRONOMICAL SOCIETY

**http://www.astro.uni-bonn.de/~izzard/writing.html**

# Previously on *Scientific Writing*...

- Style



DEUTSCHER FUSSBALL-BUND
adidas

# Citation, Ethics, Plagiarism

[*citation needed*]

Your right to know the Authenticity!
Plagiarism Detector
Made with Dr.Explain TRIA

be eloquent
eloquentscience.com

- **Citation**
  - **Why**, **when** and how to **cite**
  - **LaTeX** and **BibTeX**
  - **ADS**
  - Dos and don'ts
- **Ethics** and **Plagiarism**
- **Reading**:

  *Eloquent Science*

  Chapters **12** and **15**

# Why bother citing?

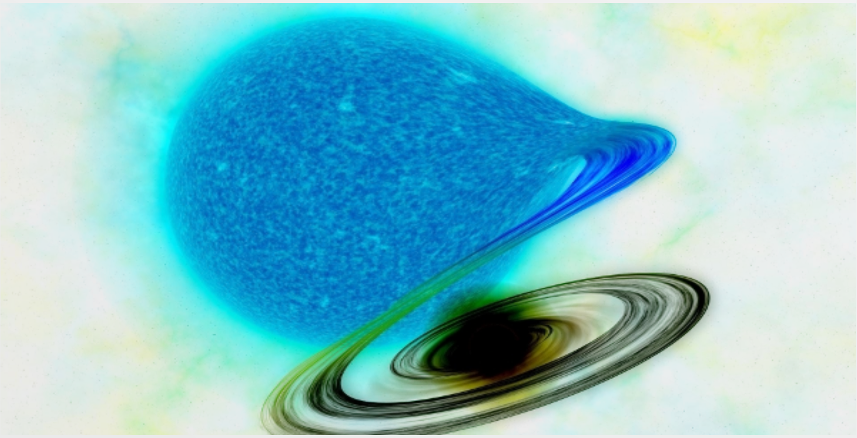
- **Literature** review (in your *Introduction*)
- Describe **development** of the field
- Distinguish **your** work from **others**
- **Credit** previously published material
- **Critique** work of others
- Convince others you are **not ignorant**!
- ***Direct quotation***

  (rare in articles, common in e.g. proposals)
- Avoid **fights** at **conferences**!

# Why cite? (2)

- **To defend your ideas based on those of others**

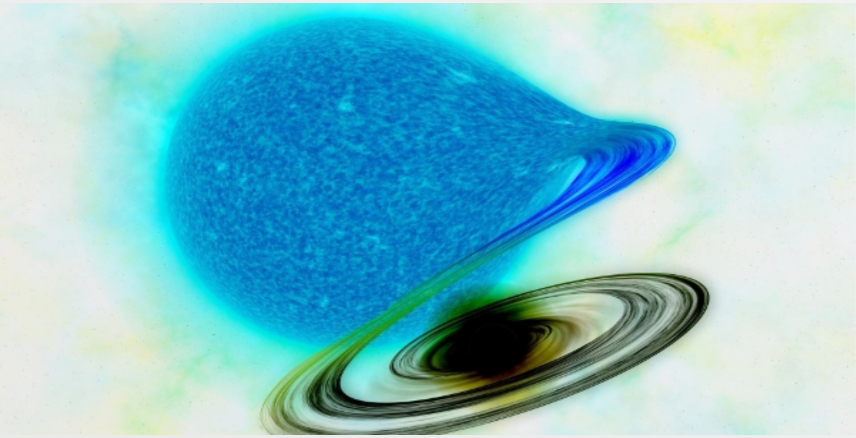
Most barium stars with *P*<500 days are in circular orbits as predicted by tidal circularisation theory. Most of the rest of the barium stars have periods between 500 and $10^4$ days.



# Why cite? (2)

- To defend your ideas based on those of others

Most barium stars with *P*<500 days are in circular orbits as predicted by tidal circularisation theory **(e.g. Zahn 1977, 1989)**. Most of the rest of the barium stars have periods between 500 and $10^4$ days **(Jorissen et al. 1998)**.



# Why cite? (3)

- You want to keep your job as Germany's ***Defence Minister?***

# Citation systems

- *Author – year*

We employ the stellar code of **Izzard (2015)**.

We model stars with an approximate stellar evolution code **(Izzard 2015)**.

**Izzard (2015)** describes our stellar evolution code.

**Easy to read/edit**

**Flexible sentence structure**

**References**

Izzard R.G. 2015, *Made Up Astronomy*, vol. **42**, 69

# Citation systems

- ***Numbered citations***

~~We employ the stellar code of Izzard (2011).~~

We model stars with an approximate stellar evolution code[1].

~~Izzard (2011) describe our stellar evolution code.~~

Shorter – easier to read?

Rigid sentence structure

**References**

1. Izzard R.G. 2015, *Made Up Astronomy*, vol. **42**, 69

# Sentence structure

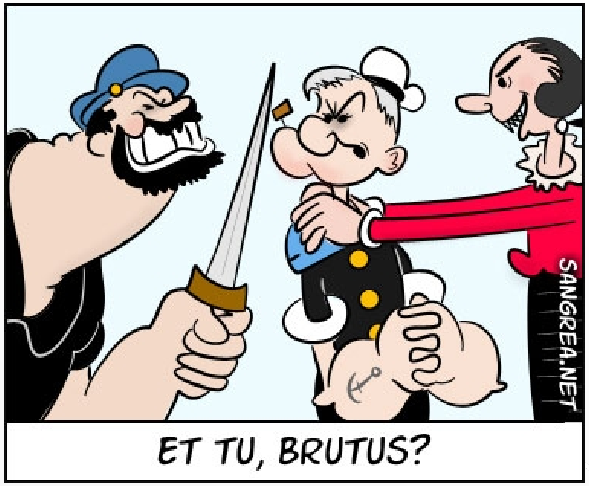
- Citations at the ***end*** expect where ambiguous

  Most barium stars with *P*<500 days are in circular orbits as predicted by tidal circularisation theory (Zahn 1977, 1989, Jorissen et al. 1998).

  Most barium stars with *P*<500 days are in circular orbits (Jorissen et al. 1998) as predicted by tidal circularisation theory (Zahn 1977, 1989).

- Cite in **chronological** order
- First time: if only three authors cite ***in full***

# Et tu syntax



ET TU, BRUTUS?

- et al. = *et alia* “and others”

    . is required (is *Al* the author?)

    , after is required in *American* English

  Izzard **et al.** (2011) show …

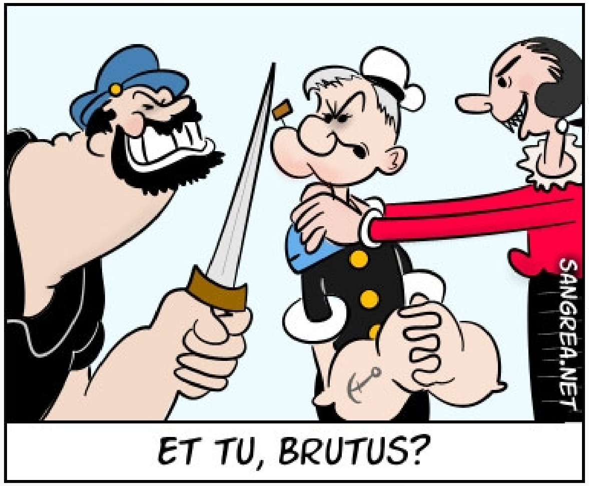
- e.g. = *exempli gratia* “for example”

    . and . are required

    , after in *American*

  Previous results on the subject are nonsense (**e.g.** Izzard 2011).

# Et tu syntax



- ***Personal communication***

  For an ***unpublished*** *or* ***informal*** citation, not an opinion or obvious fact! (Perhaps supplement with information in Acknowledgements)

- Page numbers: for citing ***part of*** a book
- Abbreviations:

  Izzard et al. (2011, hereafter **I11**) show …

  … cf. ***acronyms*** …

# Tu et syntax

ET TU, BRUTE?
memegenerator.net

- Footnotes: **no no no no no**![1]
- **Initials**: *J. Smith (2010) and D. Smith (2010)*
- **Year**?

  Smith (2010) showed... Smith showed...
  Beware **ambiguity**!

- "See" ? Cut it – means the same!

  The stars blew up (**see** Izzard 2011).

  The stars blew up (Izzard 2011).

[1] … no more footnotes!

# Tu et syntax

ET TU, BRUTE?
memegenerator.net

- ***The paper of*** Smith (2011) shows...

  or, better, just:

  Smith (2011) shows ...
- Ditto for superfluous forms:

  ***The*** Smith (2011) ***article*** shows...

  ***The article of*** Smith (2011) shows...

  ***In his paper,*** Smith (2011) shows...

# Direct Quotations “ ”

- Rarely directly quote sources but sometimes necessary (e.g. **review articles**)
- Interpret the quotation, context essential
- **Copyright?** ©
- You ***can*** edit the quotation

  (… [sic] *italics for emphasis* etc.)
- Take care with ***images*** and ***tables***

  (Best to not edit an image or table!)

# What to cite: what not to cite

- ***Peer-reviewed*** journal articles and results presented therein
- Review articles : try to cite ***original*** sources
- **Books**: sometimes, give pages/edition
- "**Grey**" sources: PhD theses, textbooks, biographies, conference proceedings, newspapers, ***Wikipedia***, "cult" articles … *beware* the world wide web (**URLs** change!)

  (Check journal policy!)
- **Self-citation** is a plague!

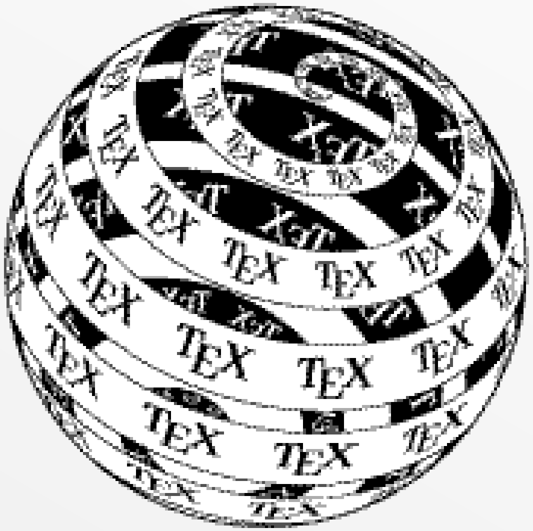
Combat
Grey

# Citations with LaTeX/BibTeX

- http://www.bibtex.org/
- Combined with LaTeX this ***automates*** the construction of your reference list.
- Use ***Natbib*** package
- Cite commands:

`\citep` (Smith et al. 2011)

`\citet` Smith et al. (2011)



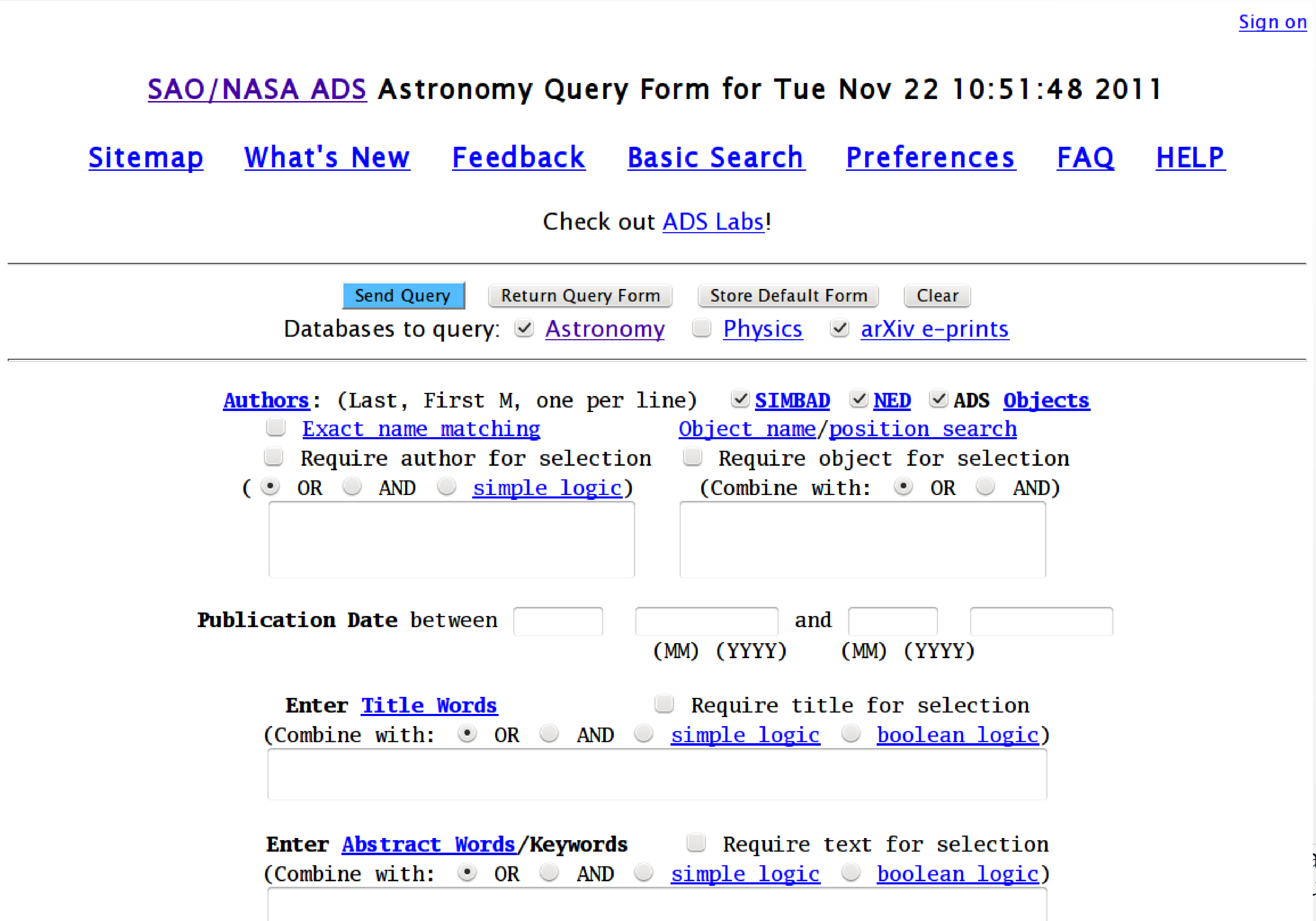
- Store your **BibTeX** references (**ADS**!) in a file
- Use **LyX** or **TeXshop** or similar software

# What is ADS?

- http://esoads.eso.org/abstract_service.html
- The SAO/NASA Astrophysics Data System (**ADS**) is a ***Digital Library portal for researchers in Astronomy and Physics***, operated by the Smithsonian Astrophysical Observatory (SAO) under a **NASA** grant.
- The **ADS** maintains three bibliographic databases containing 11,244,794 records (as of 5th January 2015, adswww.harvard.edu/ads_abstracts.html):

  Astronomy and Astrophysics, Physics, and **arXiv** e-prints.

# How to use ADS



Sign on

SAO/NASA ADS Astronomy Query Form for Tue Nov 22 10:51:48 2011

Sitemap What's New Feedback Basic Search Preferences FAQ HELP

Check out ADS Labs!

---

Databases to query: ☑ Astronomy ☐ Physics ☑ arXiv e-prints

---

**Authors**: (Last, First M, one per line) ☑ **SIMBAD** ☑ **NED** ☑ **ADS Objects**

☐ Exact name matching

☐ Require author for selection

( ● OR ○ AND ○ simple logic)

Object name/position search

☐ Require object for selection

(Combine with: ● OR ○ AND)

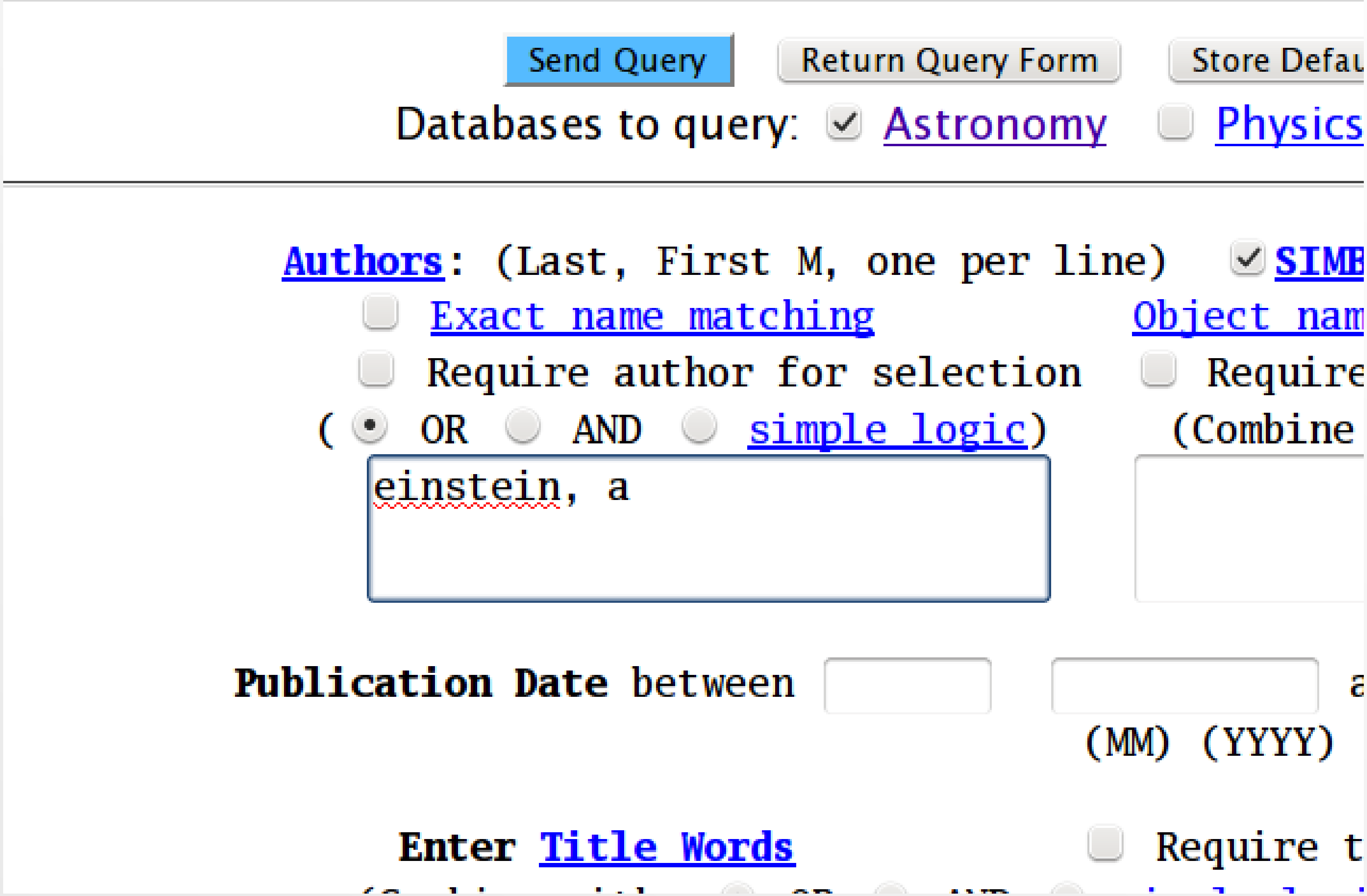
**Publication Date** between (MM) (YYYY) and (MM) (YYYY)

**Enter Title Words** ☐ Require title for selection

(Combine with: ● OR ○ AND ○ simple logic ○ boolean logic)

**Enter Abstract Words/Keywords** ☐ Require text for selection

(Combine with: ● OR ○ AND ○ simple logic ○ boolean logic)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Databases to query: ☑ Astronomy ☐ Physics

**Authors**: (Last, First M, one per line) ☑ **SIMB**

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(Combine

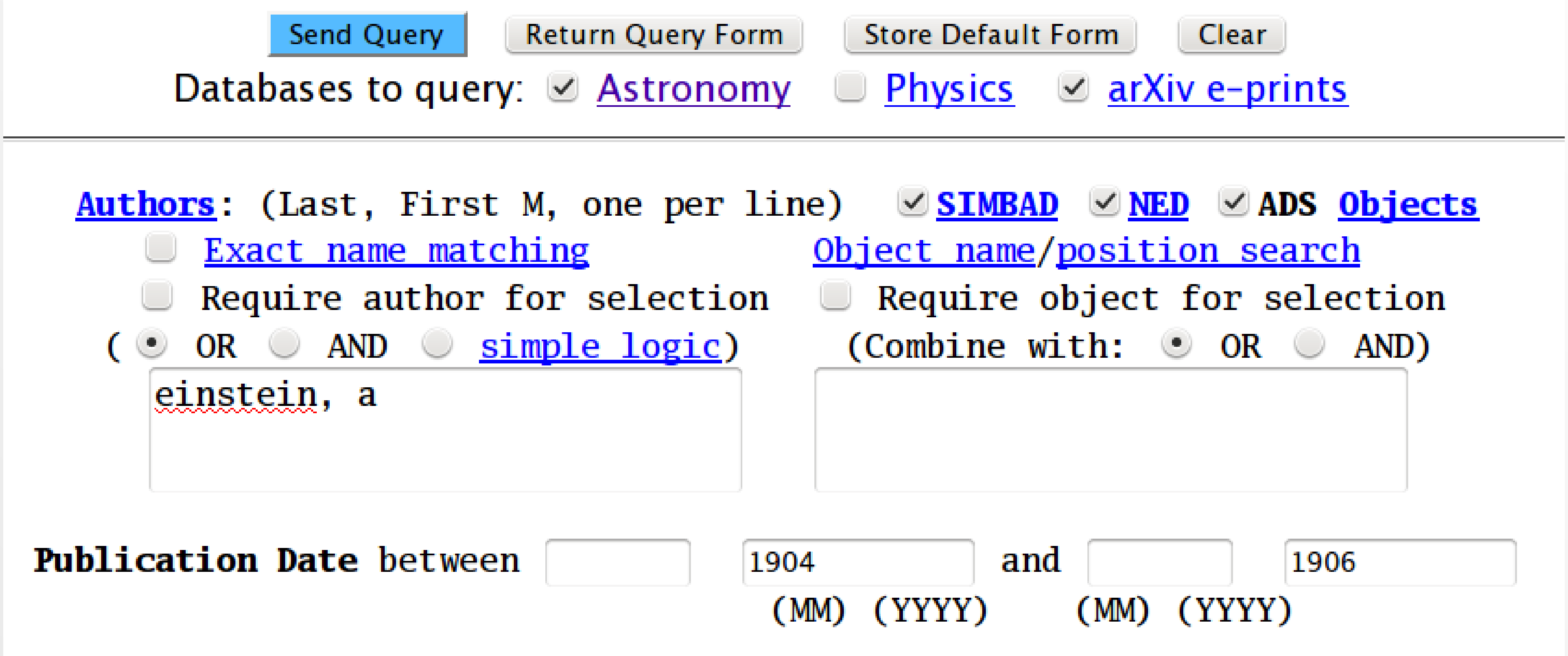
einstein, a

**Publication Date** between

(MM) (YYYY)

**Enter Title Words**

☐ Require t


Send Query
Return Query Form
Store Default Form
Clear

Databases to query: ☑ Astronomy ☐ Physics ☑ arXiv e-prints

**Authors**: (Last, First M, one per line) ☑ **SIMBAD** ☑ **NED** ☑ **ADS Objects**

☐ Exact name matching

Object name/position search

☐ Require author for selection

☐ Require object for selection

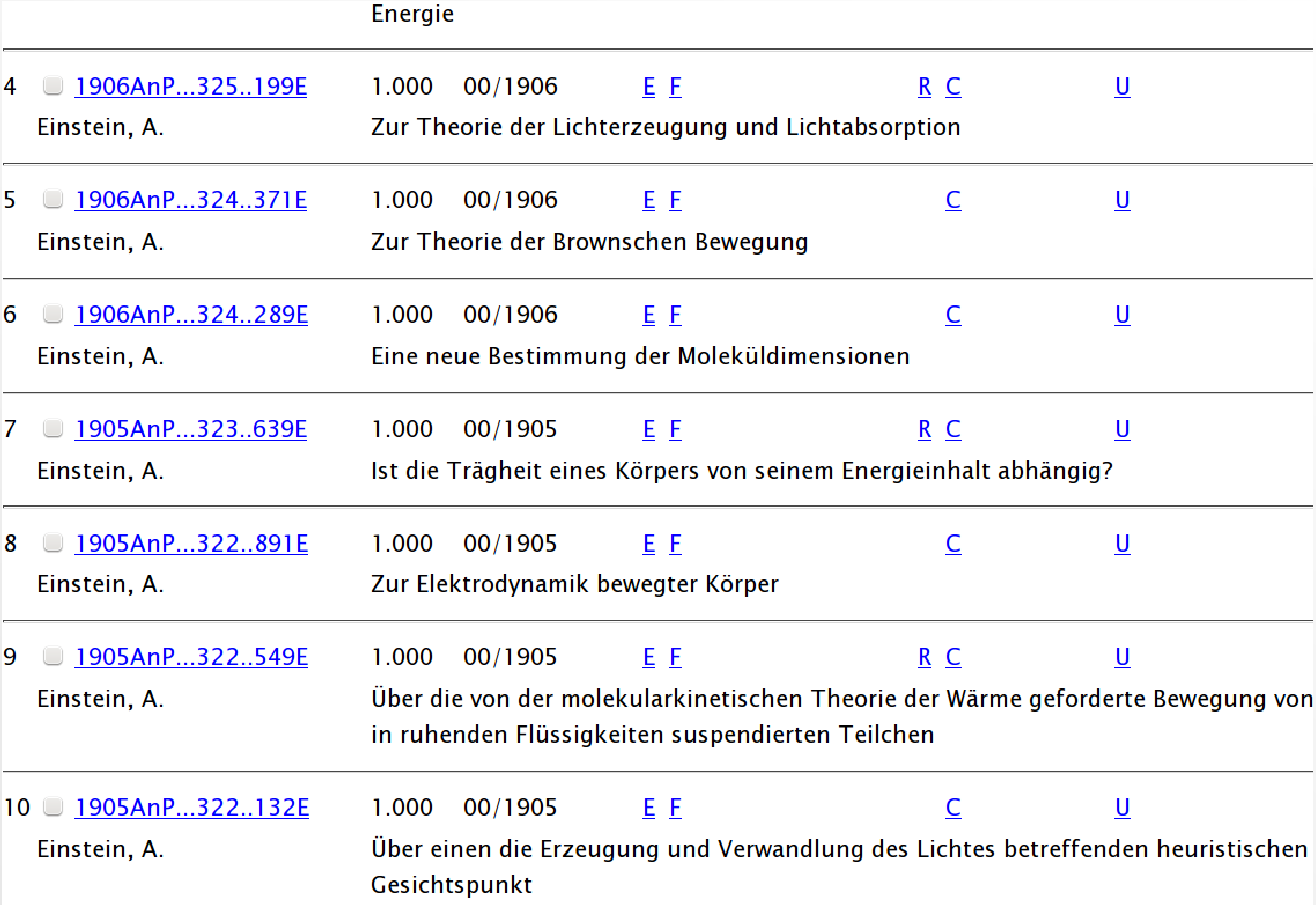
( ● OR ○ AND ○ simple logic)

(Combine with: ● OR ○ AND)

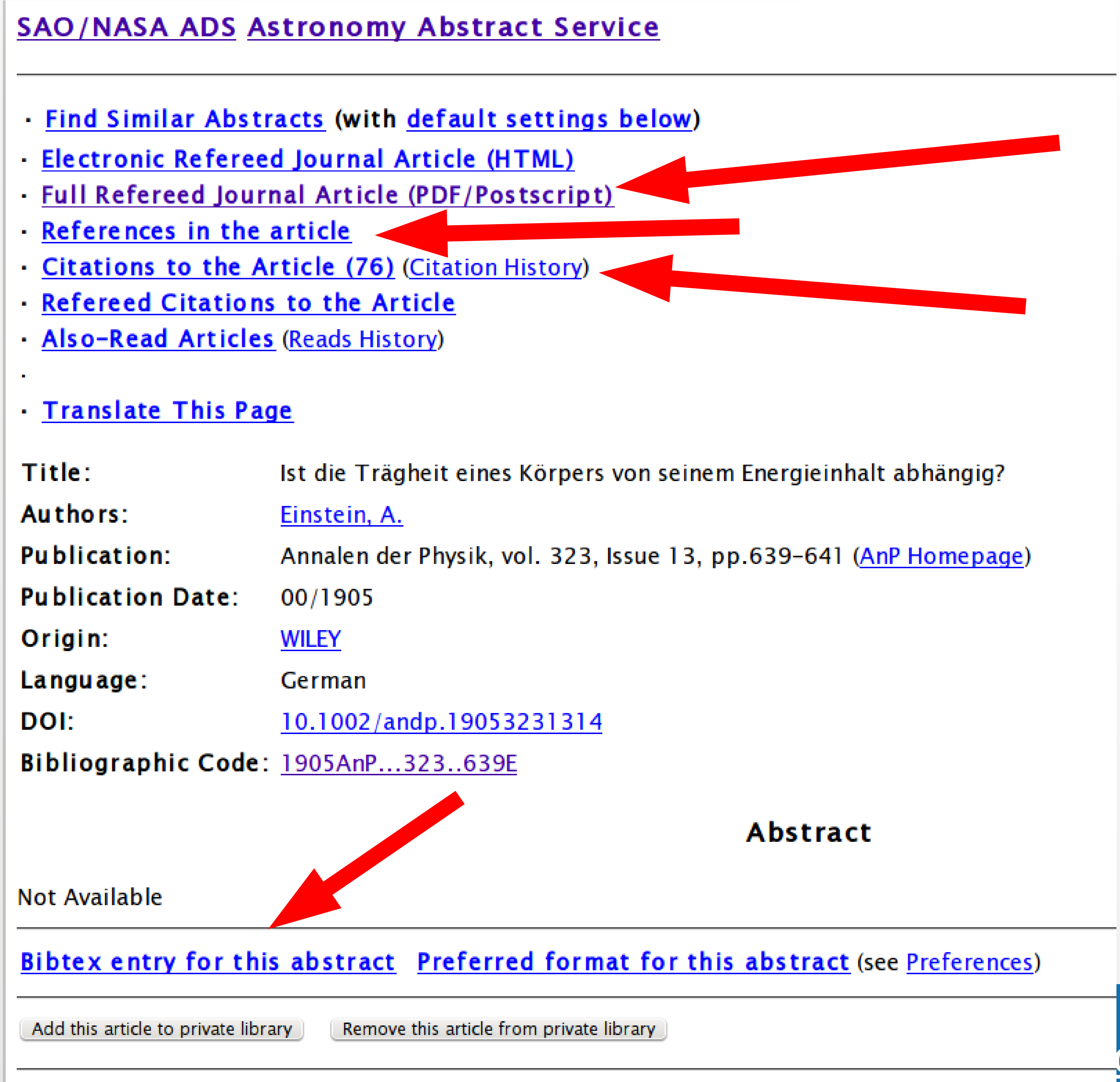
einstein, a

**Publication Date** between __ 1904 and __ 1906

(MM) (YYYY) (MM) (YYYY)



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | Energie | | | | |
| 4 | ☐ | 1906AnP...325..199E | 1.000 | 00/1906 | E F | R C | U |
| | | Einstein, A. | Zur Theorie der Lichterzeugung und Lichtabsorption | | | | |
| 5 | ☐ | 1906AnP...324..371E | 1.000 | 00/1906 | E F | C | U |
| | | Einstein, A. | Zur Theorie der Brownschen Bewegung | | | | |
| 6 | ☐ | 1906AnP...324..289E | 1.000 | 00/1906 | E F | C | U |
| | | Einstein, A. | Eine neue Bestimmung der Moleküldimensionen | | | | |
| 7 | ☐ | 1905AnP...323..639E | 1.000 | 00/1905 | E F | R C | U |
| | | Einstein, A. | Ist die Trägheit eines Körpers von seinem Energieinhalt abhängig? | | | | |
| 8 | ☐ | 1905AnP...322..891E | 1.000 | 00/1905 | E F | C | U |
| | | Einstein, A. | Zur Elektrodynamik bewegter Körper | | | | |
| 9 | ☐ | 1905AnP...322..549E | 1.000 | 00/1905 | E F | R C | U |
| | | Einstein, A. | Über die von der molekularkinetischen Theorie der Wärme geforderte Bewegung von in ruhenden Flüssigkeiten suspendierten Teilchen | | | | |
| 10 | ☐ | 1905AnP...322..132E | 1.000 | 00/1905 | E F | C | U |
| | | Einstein, A. | Über einen die Erzeugung und Verwandlung des Lichtes betreffenden heuristischen Gesichtspunkt | | | | |



SAO/NASA ADS Astronomy Abstract Service

- Find Similar Abstracts (with default settings below)
- Electronic Refereed Journal Article (HTML)
- Full Refereed Journal Article (PDF/Postscript)
- References in the article
- Citations to the Article (76) (Citation History)
- Refereed Citations to the Article
- Also-Read Articles (Reads History)
- 
- Translate This Page

| | |
|---|---|
| **Title:** | Ist die Trägheit eines Körpers von seinem Energieinhalt abhängig? |
| **Authors:** | Einstein, A. |
| **Publication:** | Annalen der Physik, vol. 323, Issue 13, pp.639-641 (AnP Homepage) |
| **Publication Date:** | 00/1905 |
| **Origin:** | WILEY |
| **Language:** | German |
| **DOI:** | 10.1002/andp.19053231314 |
| **Bibliographic Code:** | 1905AnP...323..639E |

**Abstract**

Not Available

Bibtex entry for this abstract Preferred format for this abstract (see Preferences)

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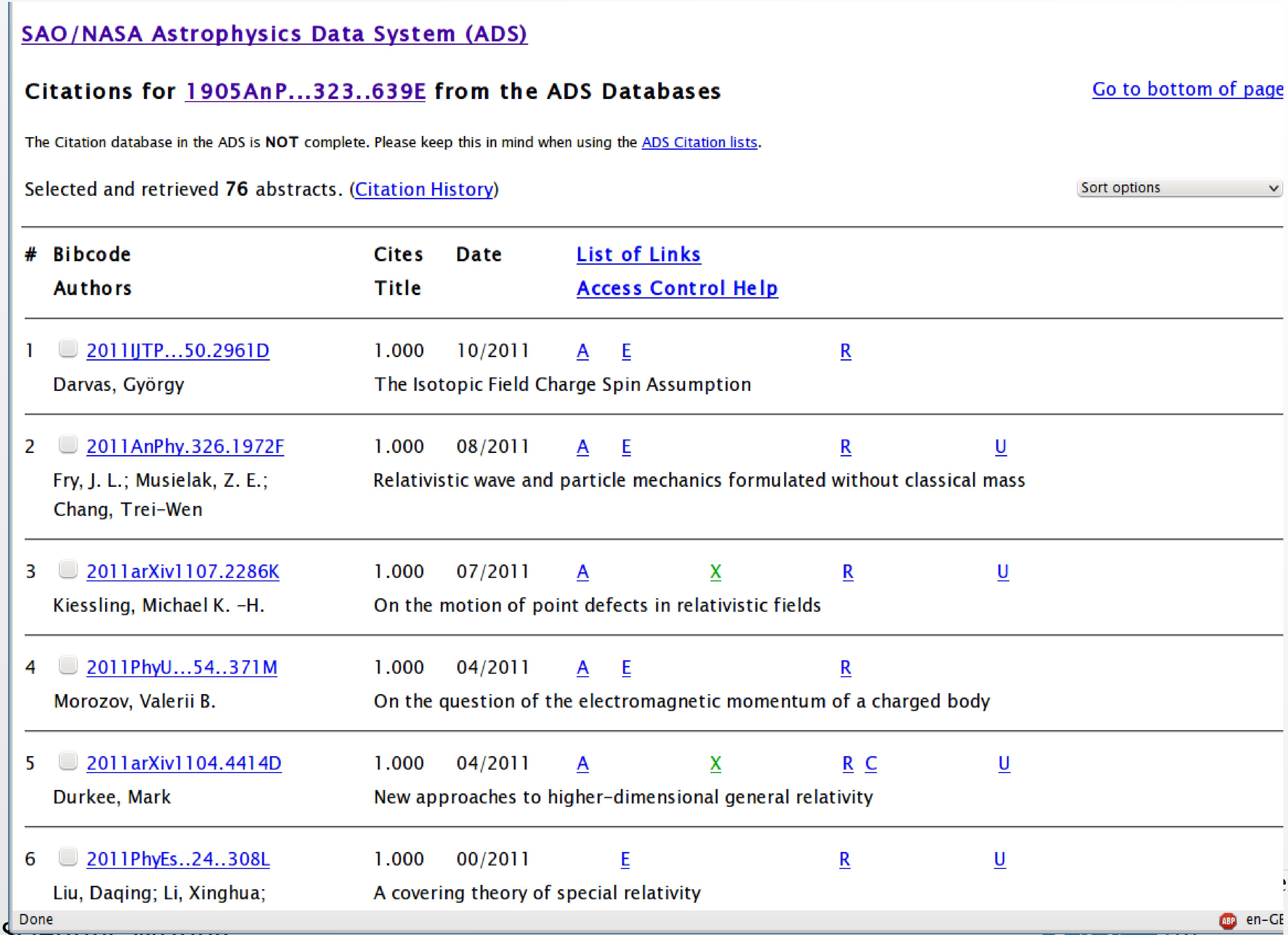
Institut
für
Astronomie



SAO/NASA Astrophysics Data System (ADS)

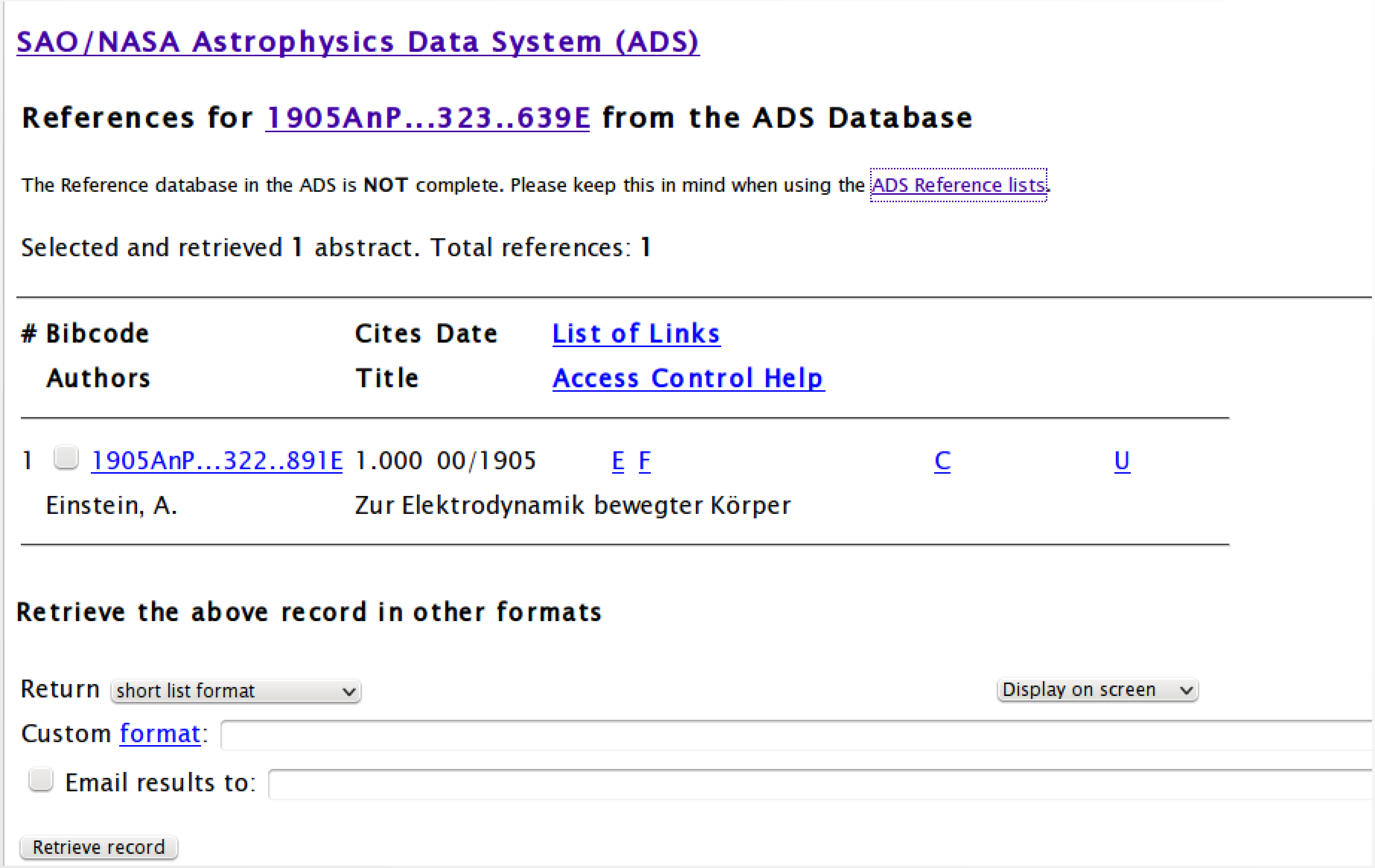
**Citations for 1905AnP...323..639E from the ADS Databases**

Go to bottom of page

The Citation database in the ADS is **NOT** complete. Please keep this in mind when using the ADS Citation lists.

Selected and retrieved **76** abstracts. (Citation History)

| # | Bibcode<br>Authors | Cites<br>Title | Date | List of Links<br>Access Control Help |
|---|---|---|---|---|
| 1 | ☐ 2011IJTP...50.2961D<br>Darvas, György | 1.000<br>The Isotopic Field Charge Spin Assumption | 10/2011 | A E R |
| 2 | ☐ 2011AnPhy.326.1972F<br>Fry, J. L.; Musielak, Z. E.; Chang, Trei-Wen | 1.000<br>Relativistic wave and particle mechanics formulated without classical mass | 08/2011 | A E R U |
| 3 | ☐ 2011arXiv1107.2286K<br>Kiessling, Michael K. -H. | 1.000<br>On the motion of point defects in relativistic fields | 07/2011 | A X R U |
| 4 | ☐ 2011PhyU...54..371M<br>Morozov, Valerii B. | 1.000<br>On the question of the electromagnetic momentum of a charged body | 04/2011 | A E R |
| 5 | ☐ 2011arXiv1104.4414D<br>Durkee, Mark | 1.000<br>New approaches to higher-dimensional general relativity | 04/2011 | A X R C U |
| 6 | ☐ 2011PhyEs..24..308L<br>Liu, Daqing; Li, Xinghua; | 1.000<br>A covering theory of special relativity | 00/2011 | E R U |



SAO/NASA Astrophysics Data System (ADS)

**References for 1905AnP...323..639E from the ADS Database**

The Reference database in the ADS is **NOT** complete. Please keep this in mind when using the ADS Reference lists.

Selected and retrieved 1 abstract. Total references: 1

| # Bibcode<br>Authors | | Cites | Date<br>Title | List of Links<br>Access Control Help | | | |
|---|---|---|---|---|---|---|---|
| 1 | ☐ 1905AnP...322..891E<br>Einstein, A. | 1.000 | 00/1905<br>Zur Elektrodynamik bewegter Körper | E | F | C | U |

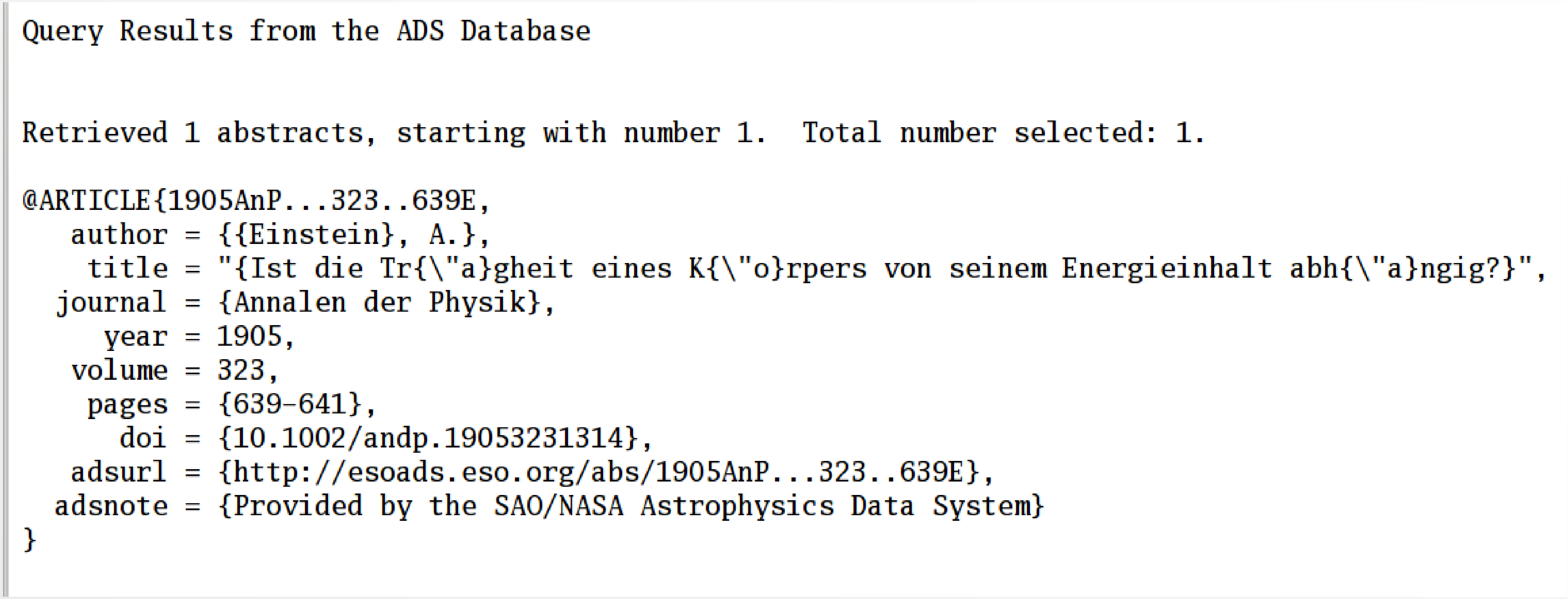
**Retrieve the above record in other formats**

Return short list format

Display on screen

Custom format:

☐ Email results to:



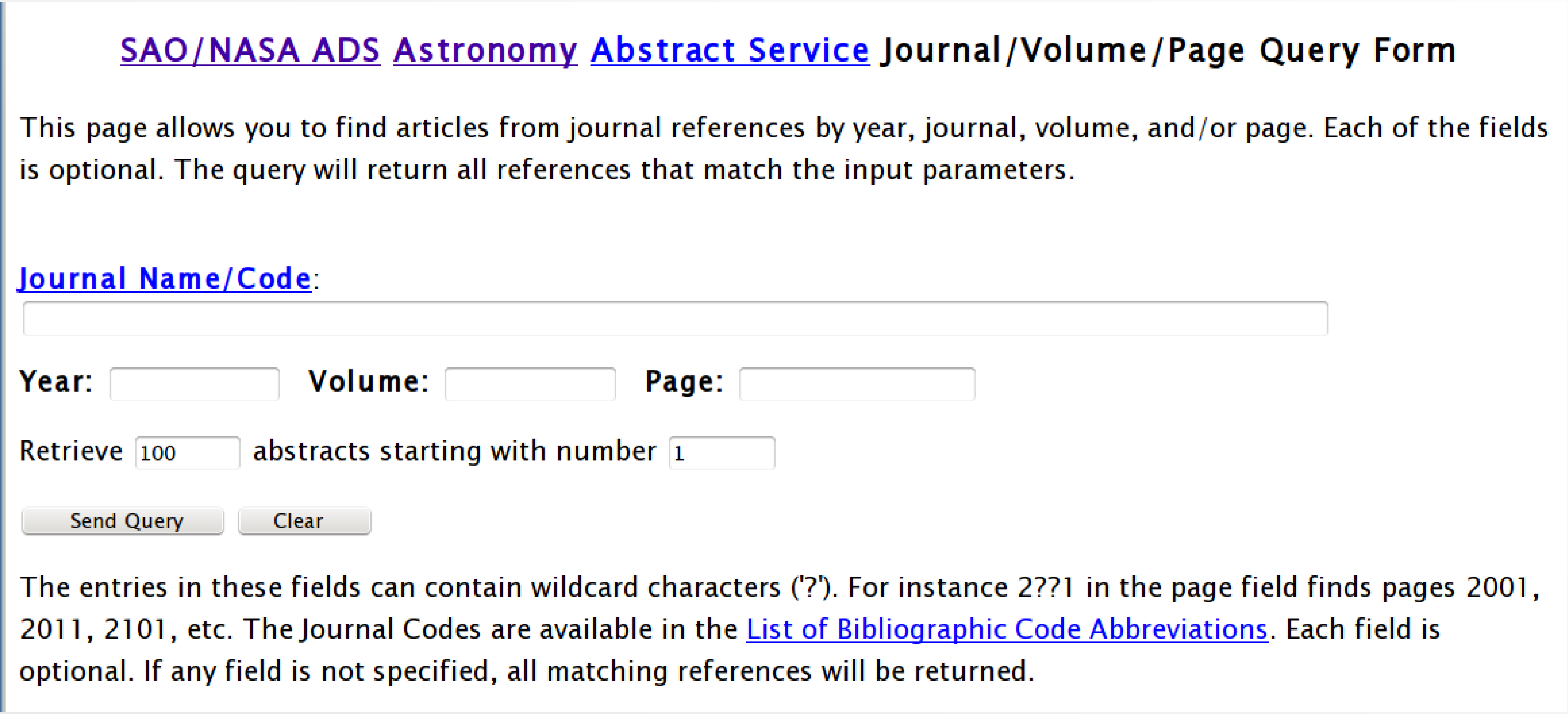
```
Query Results from the ADS Database


Retrieved 1 abstracts, starting with number 1.  Total number selected: 1.

@ARTICLE{1905AnP...323..639E,
   author = {{Einstein}, A.},
    title = "{Ist die Tr{\"a}gheit eines K{\"o}rpers von seinem Energieinhalt abh{\"a}ngig?}",
  journal = {Annalen der Physik},
     year = 1905,
   volume = 323,
    pages = {639-641},
      doi = {10.1002/andp.19053231314},
   adsurl = {http://esoads.eso.org/abs/1905AnP...323..639E},
  adsnote = {Provided by the SAO/NASA Astrophysics Data System}
}
```

**BibTeX** format!

Copy-paste this into **YOUR BibTeX** file :
Zero opportunity for error!

(Also **no excuses** :)

# Journal Year/Volume/Page



SAO/NASA ADS Astronomy Abstract Service Journal/Volume/Page Query Form

This page allows you to find articles from journal references by year, journal, volume, and/or page. Each of the fields is optional. The query will return all references that match the input parameters.

Journal Name/Code:

Year: Volume: Page:

Retrieve 100 abstracts starting with number 1

The entries in these fields can contain wildcard characters ('?'). For instance 2??1 in the page field finds pages 2001, 2011, 2101, etc. The Journal Codes are available in the List of Bibliographic Code Abbreviations. Each field is optional. If any field is not specified, all matching references will be returned.

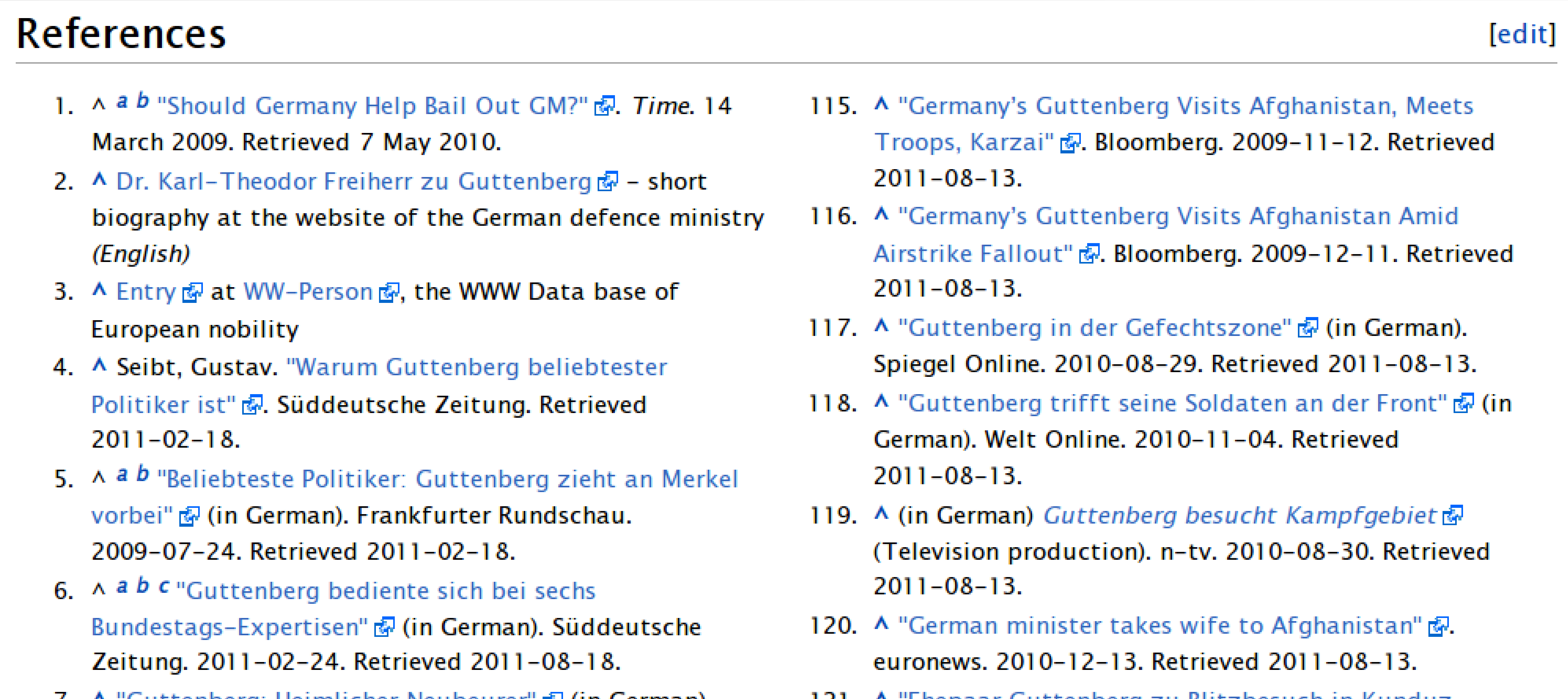
# ADS help pages

- There are many more features:
- **Targetted** (filtered) **emails**
- **Title**/keyword **searches**
- Links to data (**CDS**) and **SIMBAD**
- Help manual:
  **http://esoads.eso.org/abs_doc/help_pages/adshelp.pdf**
- Online:

  **http://esoads.eso.org/abs_doc/help_pages/**

# Wikipedia and The Web

- Great tools... but they are in the "**grey**" area
- Wikipedia usually has a ***References*** section
- Cite the ***original*** source of the information!



## References

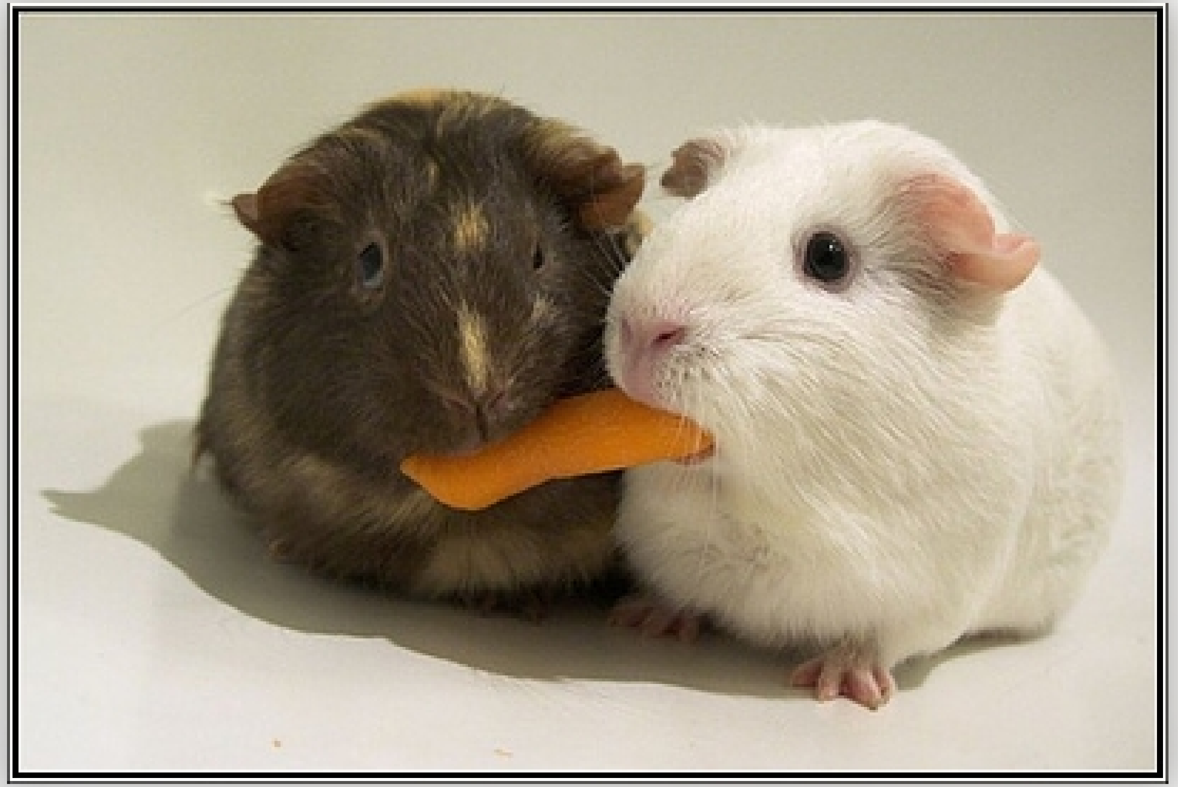
[edit]

1. ^ *a* *b* "Should Germany Help Bail Out GM?". *Time*. 14 March 2009. Retrieved 7 May 2010.
2. ^ Dr. Karl-Theodor Freiherr zu Guttenberg – short biography at the website of the German defence ministry *(English)*
3. ^ Entry at WW-Person, the WWW Data base of European nobility
4. ^ Seibt, Gustav. "Warum Guttenberg beliebtester Politiker ist". Süddeutsche Zeitung. Retrieved 2011-02-18.
5. ^ *a* *b* "Beliebteste Politiker: Guttenberg zieht an Merkel vorbei" (in German). Frankfurter Rundschau. 2009-07-24. Retrieved 2011-02-18.
6. ^ *a* *b* *c* "Guttenberg bediente sich bei sechs Bundestags-Expertisen" (in German). Süddeutsche Zeitung. 2011-02-24. Retrieved 2011-08-18.

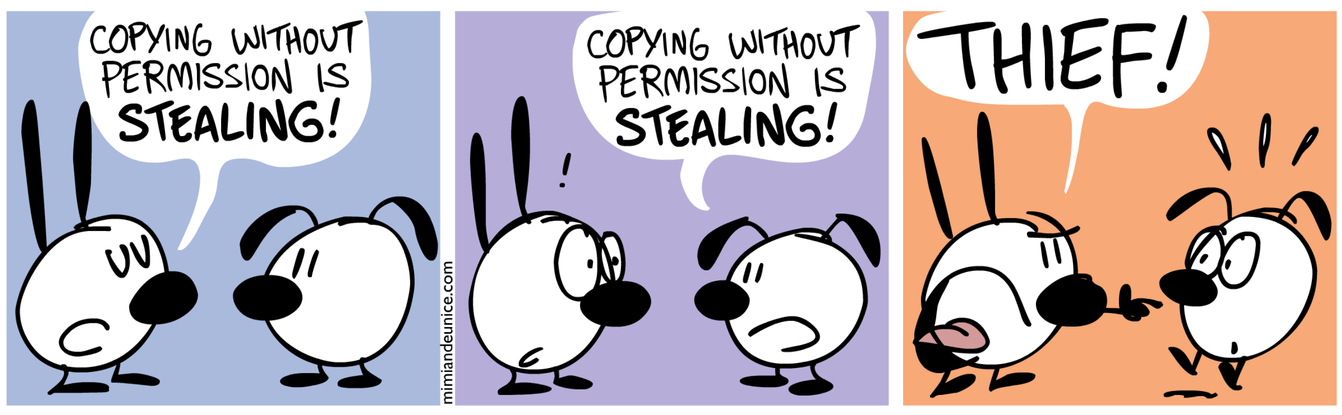
115. ^ "Germany's Guttenberg Visits Afghanistan, Meets Troops, Karzai". Bloomberg. 2009-11-12. Retrieved 2011-08-13.
116. ^ "Germany's Guttenberg Visits Afghanistan Amid Airstrike Fallout". Bloomberg. 2009-12-11. Retrieved 2011-08-13.
117. ^ "Guttenberg in der Gefechtszone" (in German). Spiegel Online. 2010-08-29. Retrieved 2011-08-13.
118. ^ "Guttenberg trifft seine Soldaten an der Front" (in German). Welt Online. 2010-11-04. Retrieved 2011-08-13.
119. ^ (in German) *Guttenberg besucht Kampfgebiet* (Television production). n-tv. 2010-08-30. Retrieved 2011-08-13.
120. ^ "German minister takes wife to Afghanistan". euronews. 2010-12-13. Retrieved 2011-08-13.

# Ethics

- Do not steal, ***cite***
- But also be good to your colleagues



# Ethics: Definitions


COPYING WITHOUT PERMISSION IS STEALING!
COPYING WITHOUT PERMISSION IS STEALING!
!
THIEF!

mimiandeunice.com

- Fabrication: **making up** data/results
- Falsification: **manipulating** results and presenting them inaccurately
- Plagiarism: **stealing** ideas/results without giving appropriate credit

(does not include *disagreement/mistakes*)

National Science Foundation

**https://www.nsf.gov/oig/misconscieng.jsp**

See also *Eloquent Science* Ch.15, pp. 184

# Plagiarism

PLAGIARISM
DETECTIVE

***Where do you draw the line?***

1. Copying a paragraph verbatim from a source without any acknowledgement
2. Copying a paragraph and making small changes
3. Cutting and pasting a paragraph by using sentences of the original but omitting one or two
4. Composing a paragraph by taking short phrases from a number of sources and putting them together
5. Paraphrasing a paragraph by rewriting with substantial changes in language and organisation
6. Quoting a paragraph by placing it in block format with the source cited in text & bibliography

Based on *Academic Writing for Graduate Students*
by Swales and Feak (University of Michigan, 1993)

# Avoid stealing

STOP
PLAGIARISM

- Write about **your** ideas
- Build on others' ideas with citations
- Never copy text verbatim

  (until putting the final text together)
- Always **quote and cite** together
- Separate **your contribution** from the cited source **e.g.**

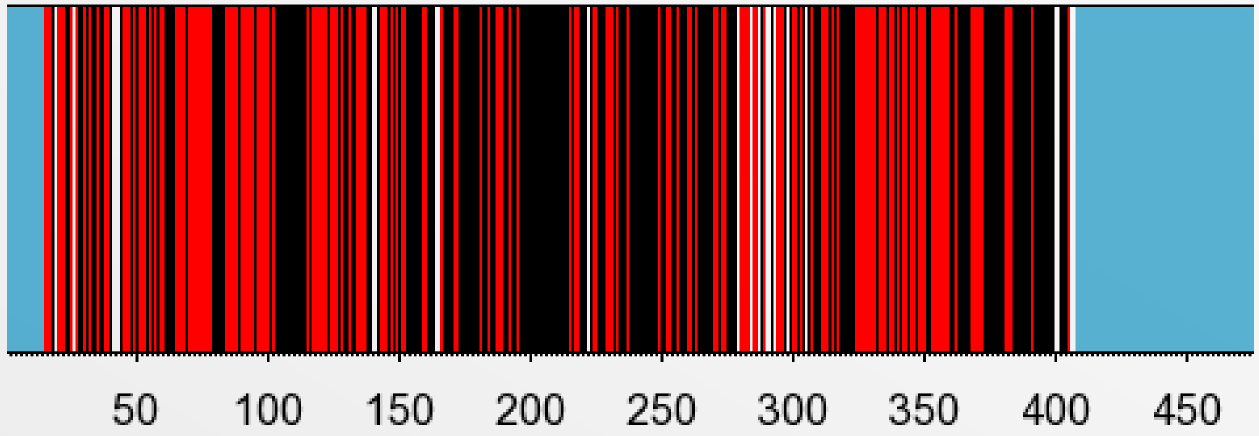
  *Smith et al. (2011) claim "the Universe is flat" but we find it is curved.*

# Self-Plagiarism

- You can steal from yourself!
- **Duplicate publication**

  e.g. submitting an article to two journals at the same time!
- **Recycling** of your text: might be acceptable
- Copyright!
- ***http://www.plagiarismtoday.com***

# zu Googleberg



1218 Plagiatsfragmente aus 135 Quellen
auf 371 von 393 Seiten (94.4%)
in 10421 plagiierten Zeilen (63.8%)

Stand: 03.04.2011 11:55 Uhr

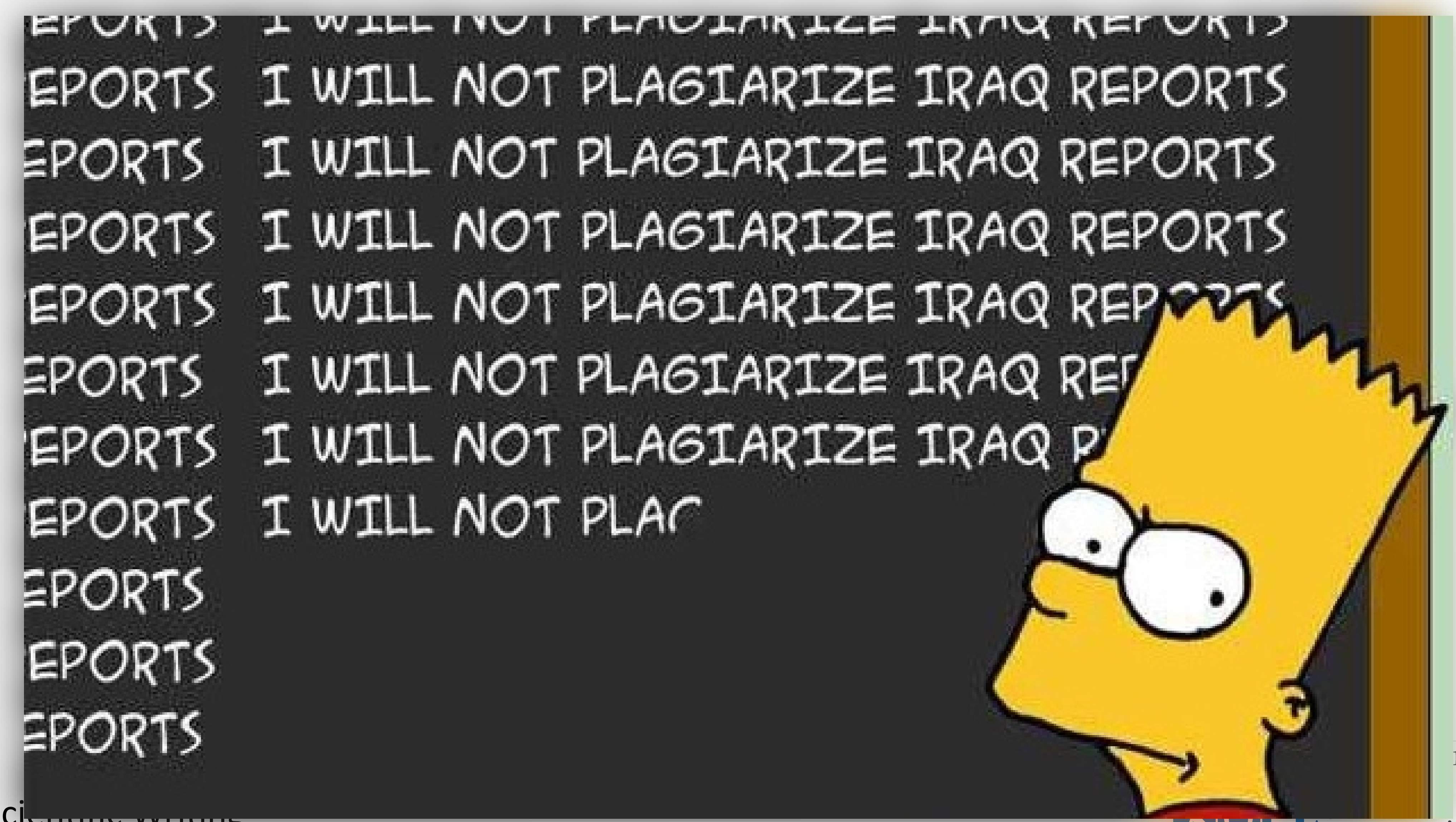
**Assume you will be caught**

- black = plagiarized from one source
- red = plagiarized from several sources
- white = no plagiarism found
- blue = table of contents and appendices

**http://de.guttenplag.wikia.com/wiki/GuttenPlag_Wiki/English**

# A final word on citation

- Read the articles you cite . . .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# Course (so far) Discussion

- Soon we will head into the *English Language* section: a bit dull but useful!
- How is it going for you?
- What more would you like to see?

OH NO! I FORGOT TO DO MY SCIENCE FAIR PROJECT AND IT'S DUE TOMORROW!!
MAYBE I COULD JUST REUSE LAST YEAR'S...