Astronomy Libraries - Your Gateway to Information

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ESO Library
esolib@eso.org
Overview

• Librarians and what they can do for you

• ADS and arXiv: tips and tricks

• Electronic journals, Open Access

• Problems with e-publications

• Cooperation between librarians and astronomers
Basic Skills

Information Literacy
Science: surplus of information, not shortage

- Know what to read
- Construct your search strategy
- Current awareness

Computer Literacy
Hardware, software, network technology

- Know your tools
- Know your sources
- How to access them (office, home, travel etc.)

Critical Thinking Skills
Is my search result correct and complete?
Information Fluency

Information Literacy

Computer Literacy

Critical Thinking Skills

Source: Pat Viele, Physics & Astronomy Librarian, Cornell University
What Librarians can do for you

- Provide access to print and electronic collections:
  - books and journals (also when through ADS)
  - databases, link collections, repositories

- Locate resources not immediately available
  - retrieval systems
  - networks of librarians
  - joint collections, knowledge, and ideas

- Library as meeting place
  - ‘science coffee’, (in)formal discussions

- Web 2.0 / Library 2.0
  - blogs; RSS; interactive; social networking
    .... or walk into the library office

- Librarians as research catalysts
  - provide research assistance, assist with finding quality information resources, tips & tricks
The 2 Big Ones in Astronomy

- NASA ADS (Astrophysics Data System)
  - www.adsabs.harvard.edu/
  - published literature + preprints
  - from publishers + authors
  - myADS notification service

- arXiv.org e-Print archive
  - arXiv.org (astro-ph)
  - preprints (various versions)
  - posted by authors
  - e-mail listings, RSS
NASA ADS

- largest digital library in astronomy, several mirror sites around the world
- used almost daily by majority of astronomers
- collection of links to articles (2-3 most recent years: subscription needed)
- Special features include:
  - 1st author searches: ^
Authors: (Last, First M, one per line)

- Exact name matching
- Require author for selection

( □ OR □ AND □ simple logic)

^savaglio, s

Publication Date between

Enter Title Words

(Combine with: □ OR □ AND □)
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  - filters, e.g., refereed only
refereed ≠ refereed

Select References From:
- All bibliographic sources
- All refereed articles
- All non-refereed publications

Select References With:
- A bibliographic entry
- At least one of the following (OR):
- All of the following (AND):
- None of the following (NOT):
  - Abstracts
  - Full Text Articles
  - arXiv e-print
  - Other related articles
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  ‣ citations: “Sorting / Sort by citation count”
SORTING

- Sort by score
- Sort by **normalized score**
- Sort by citation count
- Sort by **normalized citation count**
- Sort by first author name
- Sort by number of authors
- Sort by date (most recent first)
- Sort by date (oldest first)
- Sort by entry date
- Sort by page (ToC sort)
Selected and retrieved 26 abstracts.

<table>
<thead>
<tr>
<th>#</th>
<th>Bibcode</th>
<th>Authors</th>
<th>Score</th>
<th>Date</th>
<th>List of Links</th>
<th>Access Control Help</th>
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<tr>
<td>1</td>
<td>2008ApJS..178...71L</td>
<td>Louden, J. E.; Sneden, C.</td>
<td>1.000</td>
<td>09/2008</td>
<td>A</td>
<td>E</td>
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Improved Laboratory Transition Probabilities for Fe II and Application to the Feigim abundance of the Sun and planets.
<table>
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<tr>
<th>bibcode</th>
<th>citation count</th>
<th>pub month/year</th>
<th>Links</th>
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<td>2000AJ....120..801R</td>
<td>32.000</td>
<td>08/2000</td>
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<td>Rejkuba, Marina; Minniti, Dante; Gregg, Michael D.; Zijlstra, Albert A.; Alonso, M. Victoria; Goudfrooij, Paul</td>
<td>Deep Hubble Space Telescope STIS C Horizontal Branch</td>
<td></td>
<td></td>
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<tr>
<td>2001A&amp;A...369..812R</td>
<td>31.000</td>
<td>04/2001</td>
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<td>Rejkuba, M.</td>
<td>Deep VLT search for globular clusters function</td>
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<tr>
<td>2005ApJ...631..262R</td>
<td>23.000</td>
<td>09/2005</td>
<td>A E F</td>
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<tr>
<td>Rejkuba, Marina; Greggio, Laura; Harris, William E.; Harris, Gretchen L. H.; Peng, Eric W.</td>
<td>Deep ACS Imaging of the Halo of NG</td>
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Open Access = no subscription needed

Links: A E F X D R C S N O U

A = Abstract  D = Data  N = NED
E = HTML  R = References  O = Associated articles
F = PDF  C = Citations  U = Also read
X = arXiv  S = SIMBAD
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  ‣ export search results for reference lists
<table>
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<tr>
<th>HTML abstracts</th>
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<td>plain text abstracts</td>
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<td>VOTables</td>
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<td>Dublin Core XML</td>
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</table>
Query Results from the ADS Database

Retrieved 200 abstracts, starting with number 1. Total number selected: 278.


\bibitem{Bassino et al. (2008)}{2008MNRAS.386.1145B} Bassino, L.-P., Richtler, T., \& Dirsch, B. \ 2008, \mnras, 386, 1145

\bibitem{Mandelbaum et al. (2008)}{2008MNRAS.386..781M} Mandelbaum, R., et al. \ 2008, \mnras, 386, 781

\bibitem{Tsamis et al. (2008)}{2008MNRAS.386...22T} Tsamis, Y.-G., Walsh, J.-R., P{\`e}guinot, D., Barlow, M.-J., Danziger, I.-J., \& Liu, X.-W. \ 2008, \mnras, 386, 22


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- filters, e.g., refereed only
- citations: “Sorting / Sort by citation count”
- export search results for reference lists
- historical literature: scanned pages (fulltext search, back to vol. 1)
- links to data
- content + corrections provided by libraries
approx. ½ - 1 yr. before publication
Consistency test of general relativity from large scale structure of the Universe

Yong-Seon Song, Koichiro Koyama (ICG, Portsmouth)
Comments: 5 pages, 1 figure. PRL submitted
Subjects: Astrophysics (astro-ph)

We propose a consistency test of general relativity on cosmological scales. This test enables us to distinguish between two possibilities to explain the late time accelerated expansion of the universe, that is, dark energy models based on general relativity and modified gravity models without dark energy. We propose a way to perform this test using future observations.

Constraining Inflation

Peter Adshead, Richard Easther (Yale)
Comments: 32 pages
Subjects: Astrophysics (astro-ph)

Slow roll reconstruction is derived from the Hamilton-Jacobi formulation of inflationary dynamics. It automatically includes information from
astro-ph / arXiv

• citing arXiv papers: arXiv:YYMM.NNNv# [category]

  ‣ scientists still cite published version (e.g., in CV)
    --> journal still has a meaning (impact, reputation...)

• Schwarz & Kennicutt (2004): astro-ph --> citations 2x
• Position on arXiv --> citations?

  J.P. Dietrich:
  ‣ The importance of being first: position dependent citation rates on arXiv:astro-ph [2008PASP.120..224D]
  ‣ Disentangling visibility and self-promotion bias in the arXiv:astro-ph positional citation effect [2008PASP.120..801D]
Databases beyond ADS and astro-ph/arXiv

SPIRES-HEP

- www.slac.stanford.edu/spires/hep
- Stanford Public Information System
- SLAC, DESY, Fermilab
- bibliographic info in high-energy physics
- full-texts from arXiv and others
Databases beyond ADS and astro-ph/arXiv

Google Scholar
- scholar.google.com
- free research tool for scholarly literature + citations
- conf. proc, books, repositories
- good for correcting misspellings
- might have duplicates
- what sources are searched?
- Google PageRank
Databases beyond ADS and astro-ph/arXiv

**ISI Web of Knowledge** (Thompson Scientific)
- commercial
- consists of Web of Science (citation db), analytical tools, e.g., Science Citation Index (SCI), Journal Citation Reports (JCR)

**Scopus** (Elsevier)
- commercial
- 15,000 peer-rev STM & social sciences journals
- abstracts + citations
- tools to search, sort, export
- email + RSS alerts
Databases beyond ADS and astro-ph/arXiv

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Scopus (Elsevier)
- commercial db
- 15,000 peer-rev STM & social sciences journals
- abstracts + citations
- tools to search, sort, export
- email + RSS alerts

Citation overlap ≈ 60%

No source is perfect
Journals

• Core journals in astronomy:

- Subscription-based, with delayed Open Access (2-3 yrs.)
- As of mid-2009: print + electronic
- Librarians pay, negotiate licenses, provide access, troubleshoot
- The Future: from static journals towards virtual journals / databases

![Journals Images]
Open Access

- Make publicly funded literature available to everybody
- No subscription fees
- Archive final version, with or without journal layout
- Author self-archiving or repositories (arXiv) or Open Access Publishing (retrievability & preservation !)
Open Access

Grothkopf & Erdmann: 
Open Access — State of the Art

IAU Information Bulletin July 2008
www.iau.org/science/publications/iau/information_bulletin/

OA not for free
Reader → author
Subscribers → sponsoring institutions
Astronomy

Information bulletin on variable stars
ISSN: 03740676
EISSN: 15872440
Subject: Astronomy (General)
Publisher: Konkoly Observatory

Journal of astrophysics and astronomy - publ. by Indian academy of sciences
ISSN: 02506335
Subject: Astronomy (General)
Publisher: Indian Academy of Sciences

Revista Mexicana de Astronomía y Astrofísica : Universidad Nacional Autónoma de México, Instituto de Astronomía
ISSN: 01851101
Subject: Astronomy (General)
Publisher: Universidad Nacional Autónoma de México

New Journal of Physics
ISSN: 13672630
Subject: Physics (General)
Publisher: Institute of Physics (IoP) and Deutsche Physikalische Gesellschaft
Problems with Online Documents

• Long-term access
  ‣ Archiving: what, where, who?
  ‣ Preservation: perpetual access, migration to newer formats, metadata, ownership of content, embedded links (inside and outside)

• Completeness of digitized material
  ‣ errata, news, advertisements, columns, letters, front matter, legible figures and graphs, obituaries....

• Deleted items
  ‣ Journals: plagiarized articles
  ‣ Wikipedia: ceased projects
  ‣ Mailing lists, blogs: comments and contributions

• Broken links
  ‣ URL → URN / DOI
DOI (Digital Object Identifier)
DOI (Digital Object Identifier)
DOI (Digital Object Identifier)

- DOIs are names, not locations
- Identifiers for scientific publications
- Typical DOI: 10.1065/abc123defg
- Resolve through browser: http://dx.doi.org/10.1065/abc123defg
Intervening Metal Systems in GRB and QSO Sight Lines: The Mg II and C IV Question

Title: Intervening Metal Systems in GRB and QSO Sight Lines: The Mg II and C IV Question
Authors: Sudilovsky, Vladimir; Savaglio, Sandra; Vreeswijk, Paul; Lénaux, Cédric; Smette, Alain; Greiner, Jochen
Affiliation: AA(Physics Department, Guilford College, Greensboro, NC 27410,); Max-Planck-Institut für extraterrestrische Physik, Giessenbachstrasse, D-85748 Garching bei München, Germany,); AB(Max-Planck-Institut für extraterrestrische Physik, Giessenbachstrasse, D-85748 Garching bei München, Germany,); AC(European Southern Observatory, Alonso de Córdova 3107, Casilla 9001, Santiago 19, Chile,); AD(European Southern Observatory, Alonso de Córdova 3107, Casilla 9001, Santiago 19, Chile,); AE(European Southern Observatory, Alonso de Córdova 3107, Casilla 9001, Santiago 19, Chile,); AF(Max-Planck-Institut für extraterrestrische Physik, Giessenbachstrasse, D-85748 Garching bei München, Germany,)
ApJ Keywords: Cosmology: Miscellaneous, Gamma Rays: Bursts, Galaxies: Quasars: Absorption Lines
DOI: 10.1086/521525
Bibliographic Code: 2007ApJ...669..741S

Abstract

Prochter and coworkers recently found that the number density of strong intervening 0.5<z<2 Mg II absorbers detected in gamma-ray burst (GRB) afterglow spectra is nearly 4 times larger than those in QSO spectra. We have conducted a similar study using C IV absorbers. Our C IV sample, consisting of a total of 19 systems, is drawn from three high-resolution and high to moderate signal-to-noise ratio VLT UVES spectra of three long-duration GRB afterglows, covering the redshift interval 1.67<z<3.1. The column density distribution and number density of this sample do not show any statistical difference from the...
Astronomy: almost everything online tempting and dangerous
Information not easy to find

• Special supplements
  ‣ e.g., (color) plates

• Radio astronomy
  ‣ historical literature
  ‣ recent literature in engineering journals

• Observatory publications ( > 3 yrs.)

• Books, conference proceedings ( > 5 yrs.)

• Non-English literature
It's a library, honey -- kind of an early version of the world wide web.
Cooperations of Librarians and Astronomers

International Astronomical Union (IAU)
Commission 5: Documentation and Astronomical Data
Working Group Libraries
www.eso.org/libraries/IAU-WGLib/

Library and Information Services in Astronomy (LISA)
www.eso.org/libraries/lisa.html
Library and Information Services in Astronomy

- Series of conferences:
  - LISA I: Washington, DC, USA, 1988
  - LISA II: Garching, Germany, 1995
  - LISA III: Tenerife, Canary Islands, Spain, 1998
  - LISA IV: Prague, Czech Republic, 2002
  - LISA V: Cambridge, MA, USA, 2006
  - LISA VI: to be held in Pune, India, 2010

- Participants: librarians, publishers, computer specialists, astronomers from around the world

- Topics covered reflect the changes in library services and information access

- Forum for exchange of experiences and information about emerging fields of interest in astronomy libraries