Using Multi-partite Graphs for Recommendation and Discovery

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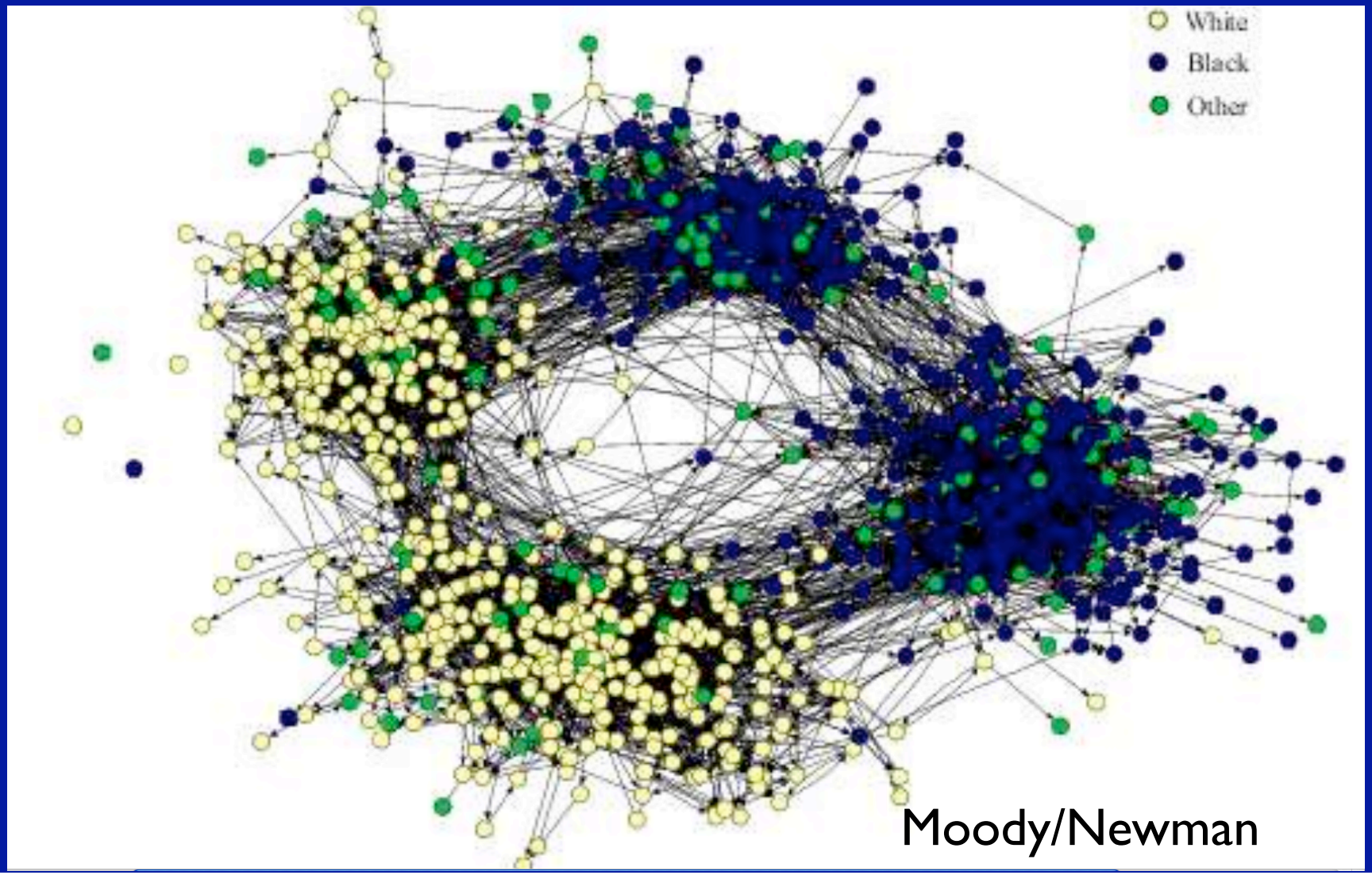
Harvard-Smithsonian Center for Astrophysics

Networks

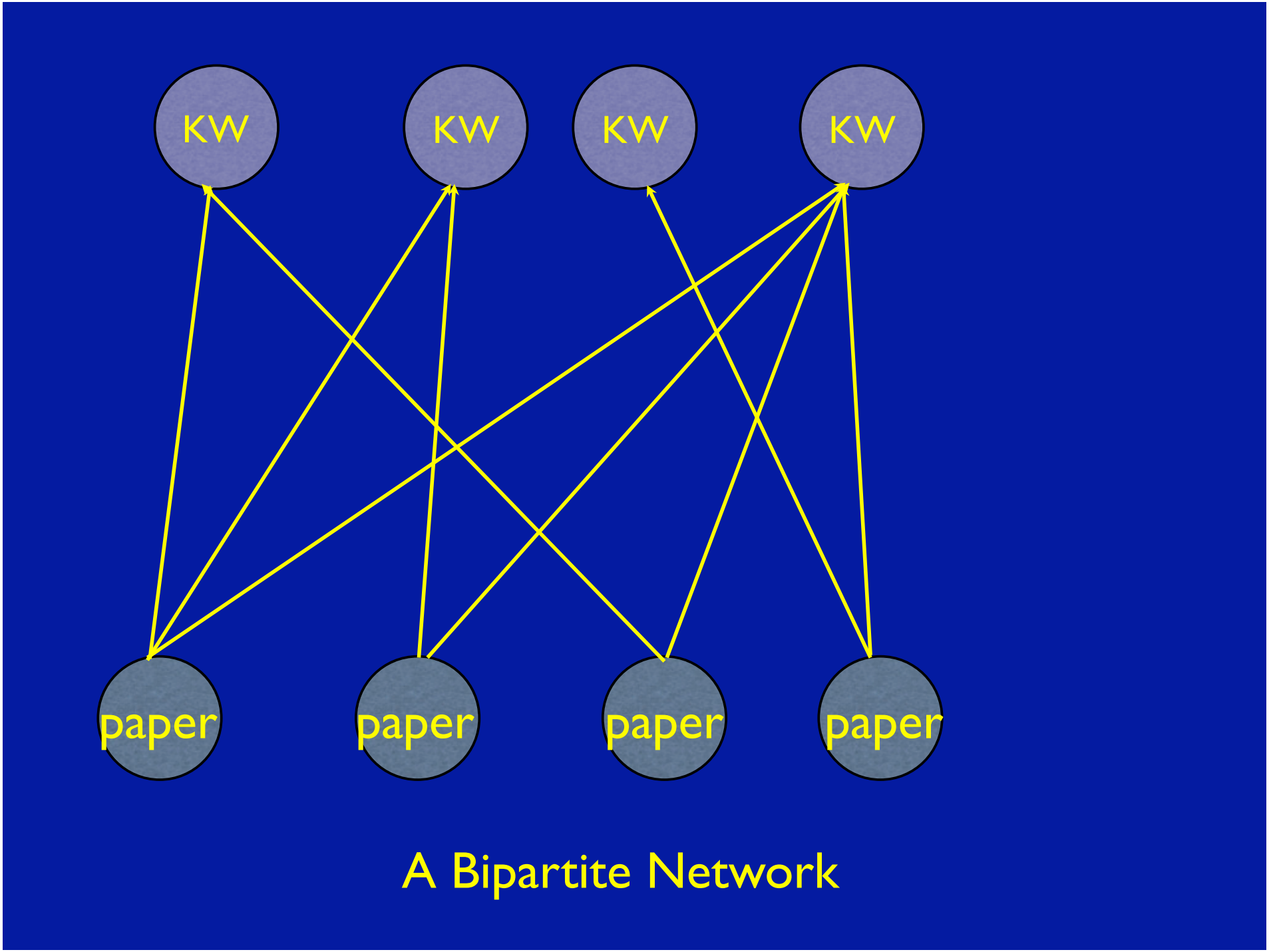
- 11% Physical Review E
- The $200 billion algorithm
- 6 degrees of separation
- Bacon number → 4
- Erdos number → 3
- Gray number → 2

Friendship Networks



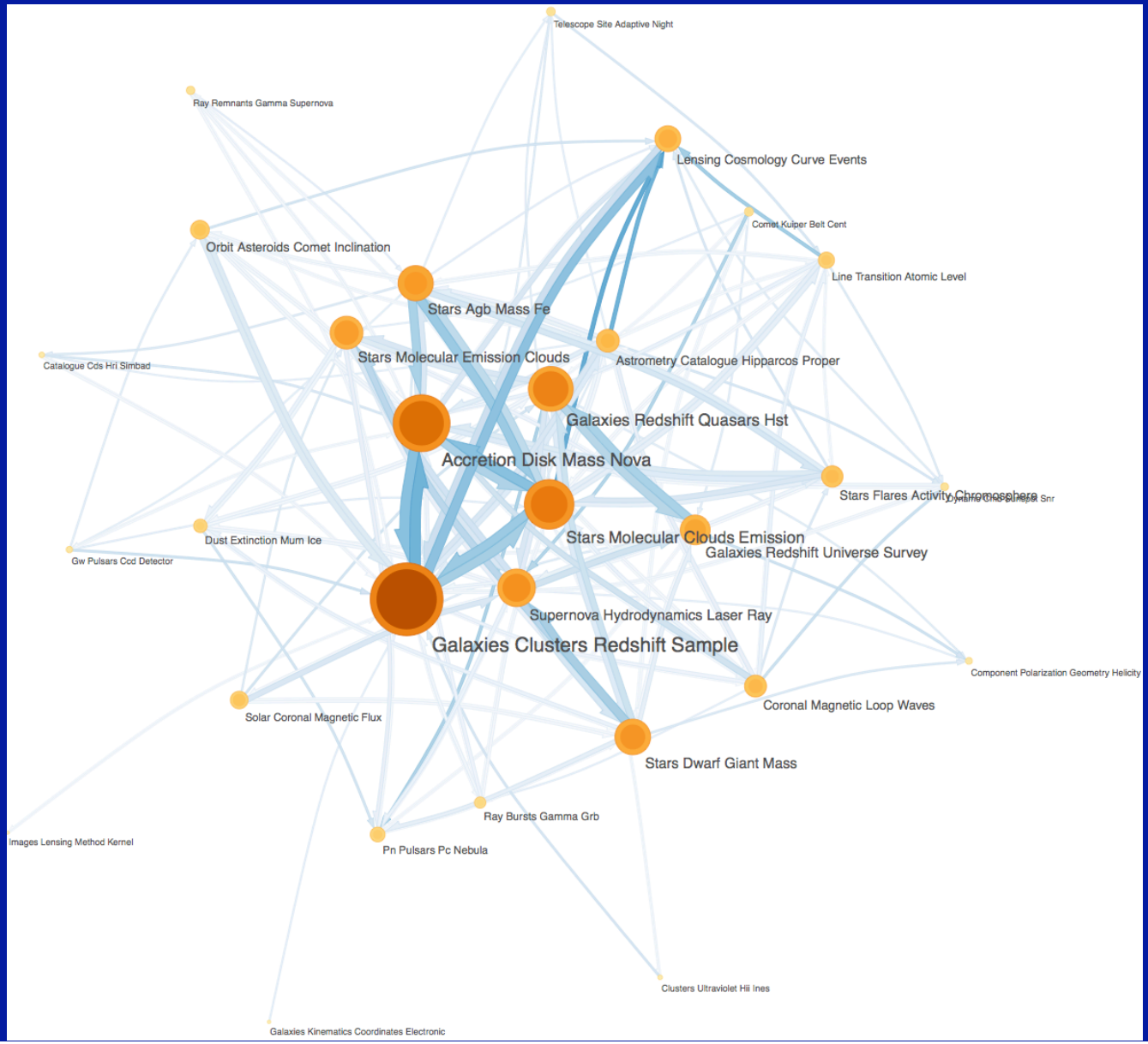
Networks

- Objects have properties
- Which is the object, which is the property
  - Do authors have papers
  - Or do papers have authors
- Weighted links → Factor analysis, classification mathematics



A Bipartite Network

Article Networks



Pavlos Protopapas - Time Series Center

- stars
- observations
- series of observations → time series
- similarity measure for TS
- groups of similar TS → stars
- papers on stars from SIMBAD
- KW for papers from ADS
- KW → proto-classification of TS/star

Papers

- Papers
- Authors
- Readers
- Key words
- Words
- Organizations
- References
- Date
- Data, …

Search

- Different searches from the same query can give very different results
- There is no best answer for all cases

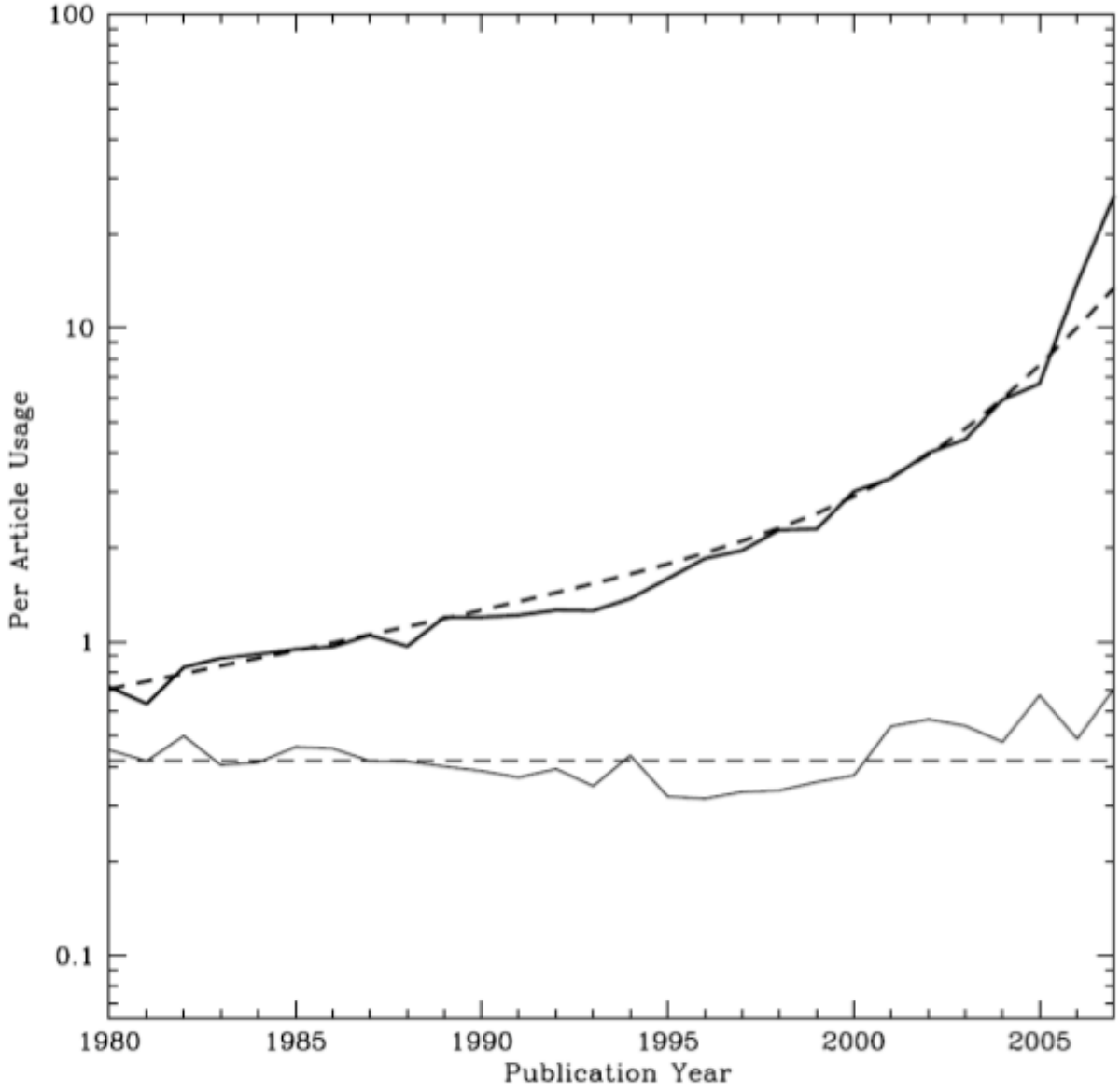
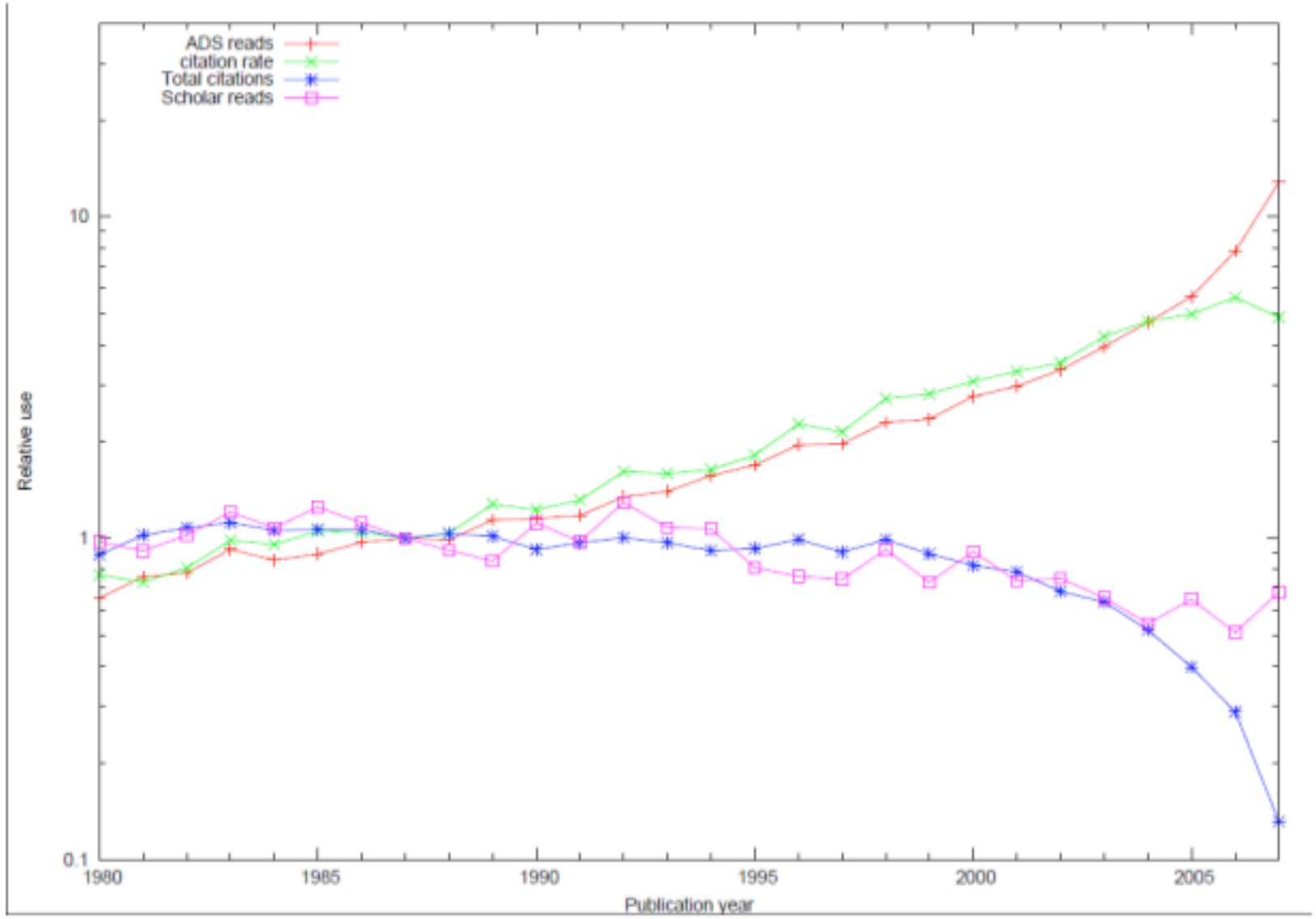


Figure 6: Obsolescence of articles from the four main astronomy journals (Astrophysical Journal, Astronomical Journal, Monthly Notices of the Royal Astronomical Society, and Astronomy and Astrophysics) by frequent ADS users and by Google users in terms of actual use


ADS reads
citation rate
Total citations
Scholar reads
10
1
0.1
Relative use
1980
1985
1990
1995
2000
2005
Publication year

Search

- Filter, rank on properties, which properties, what is the goal?
- User decides (or default)
- Example: “weak lensing” 2217 papers in ADS, how to rank on properties?

SAO/NASA ADS Astronomy Query Form for Michael Kurtz

Hint: Looking for "preflare" references and tired of sifting through "flare" references? Turn off Synonym Replacement.

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)

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)

"weak lensing"

Return 200 items starting with number 1

Full Text Search: Search OCRd text of scanned articles

myADS: Personalized notification service

Private Library and Recently read articles for Michael Kurtz

FILTERS

Select References From:

- (•) All bibliographic sources
- ( ) All refereed articles
- ( ) All non-refereed publications

[ ] Select only articles

Select/deselect publications: [ ] (',' separated list)

Select References With:

- ( ) A bibliographic entry
- (•) At least one of the following (OR):
- ( ) All of the following (AND):
- ( ) None of the following (NOT):

[ ] Abstracts	[x] Data Links	
[ ] Full Text Articles	[ ] Scanned Articles	[ ] Electronic Articles
[ ] arXiv e-print	[ ] Table of Contents	[ ] Mail Order Links
[ ] References	[ ] Citations	[ ] Other related articles
[ ] SIMBAD Objects	[ ] NED Objects	[ ] PDS Information
[ ] Author Comments	[ ] Library Links	[ ] Also-read
[ ] Multimedia	[ ] HEP/SPIRES Links	

Select References In:

- (•) All Groups
- ( ) At least one of the following groups (OR):
- ( ) All of the following groups (AND):

[ ] ARI	[ ] CfA	[ ] CFHT	[ ] Chandra
[ ] ESO/Lib	[ ] ESO/Telescopes	[ ] GBT	[ ] Gemini
[ ] Helioseismology	[ ] HST	[ ] ISO	[ ] IUE
[ ] Keck	[ ] Leiden	[ ] LPI	[ ] NCSA/ADIL
[ ] ROSAT	[ ] SDO	[ ] SMA	[ ] Spitzer
[ ] Subaru	[ ] USNO	[ ] VSGC	[ ] XMM

Entry Date:

Since: [ ] [ ] [ ] Day(DD) Month(MM) Year(YYYY)

Before: [ ] [ ] [ ] Day(DD) Month(MM) Year(YYYY)

Min Score: [ ]

Send Query | Return Query Form | Store Default Form | Clear

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)

FORMAT

- ○ HTML abstracts
- ○ plain text abstracts
- ○ BIBTEX reference list
- ◉ short list format
- ○ generic tagged abstracts
- ○ EndNote format
- ○ ProCite format
- ○ Refman format
- ○ RefWorks format
- ○ MEDLARS format
- ○ Dublin Core XML
- ○ XML abstracts
- ○ XML references
- ○ VOTables
- ○ RSS
- ○ AASTeX
- ○ Icarus
- ○ MNRAS
- ○ SoPh
- ○ Link
- ○ Custom

SETTINGS

	Authors	Objects	Title	Abstract
Require Field for Selection	☐	☐	☐	☐
Synonym Replacement	☑		☑	☑
Relative Weights	1.0	1.0	0.3	3.0
Use For Weighting	☑	☑	☑	☑
Weighted Scoring	☐		☑	☑

Send Query | Return Query Form | Store Default Form | Clear

SAO/NASA Astrophysics Data System (ADS)

Query Results from the ADS Database

Go to bottom of page

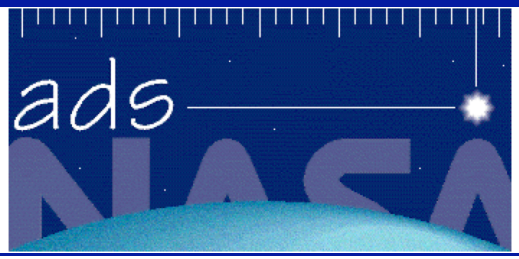
Retrieved **200** abstracts, starting with number **1**. Total number selected: **205**.

Sort options

#	Bibcode Authors	Score Title	Date	List of Links Access Control Help
1	1995hst..prop.6337W Williams, Robert	1.000 The Hubble Deep Field	07/1995	A Z D
2	1996ApJ...461..572S Squires, G.; Kaiser, N.; Babul, A.; Fahlman, G.; Woods, D.; Neumann, D. M.; Boehringer, H.	1.000 The Dark Matter, Gas, and Galaxy Distributions in Abell 2218: A Weak Gravitational Lensing and X-Ray Analysis	04/1996	A Z F G X D R C S N U H
3	1996hst..prop.6482F Fort, Bernard	1.000 Weak Lensing in the Field of Luminous Quasars. Masses of Groups of Galaxies and Magnification Bias.	07/1996	A Z D
4	1996hst..prop.6503T Tyson, J.	1.000 The Enigma Lens Q2345+007: Early Assembly of Dark Matter?	07/1996	A Z D
5	1996hst..prop.6555S Schechter, Paul	1.000 What causes the astigmatism in gravitational lenses?	07/1996	A Z D
6	1996hst..prop.6745F Franx, Marijn	1.000 Fundamental Plane, Morphology-Density Relation, and Lensing in the z=0.58 Arc Cluster CL2053	07/1996	A Z D
7	1996hst..prop.6778D Dickinson, Mark	1.000 HST Observations of a 'clusterless' Giant Arc Centered on 3c 220.1	07/1996	A Z D

Search

- Different goals require different search
- User decides on goal



ADS Topic Search

"weak lensing" Search

e.g.: "dark energy", "extrasolar planets", "weak lensing" "spin hall"

Keyword Search:

- (•) Most relevant
- ( ) Most recent
- ( ) Most important

Subject Area Search:

- ( ) Most popular
- ( ) Most useful
- ( ) Most instructive

ADS Home | Abstract Search | Help

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Query Results from the ADS Database

Go to bottom of page

"weak lensing" Search again

Retrieved **200** abstracts, starting with number **1**. Total number selected: **2357**.

Sort options

#	Bibcode Authors	Score Title	Date	List of Links Access Control Help
1	2008A&A...479....9F Fu, L.; Semboloni, E.; Hoekstra, H.; Kilbinger, M.; van Waerbeke, L.; Tereno, I.; Mellier, Y.; Heymans, C.; Coupon, J.; Benabed, K.; and 9 coauthors	100.000 Very weak lensing in the CFHTLS wide: cosmology from cosmic shear in the linear regime	02/2008	A Z E F L X R C U
2	2007MNRAS.381..702B Benjamin, Jonathan; Heymans, Catherine; Semboloni, Elisabetta; van Waerbeke, Ludovic; Hoekstra, Henk; Erben, Thomas; Gladders, Michael D.; Hetterscheidt, Marco; Mellier, Yannick; Yee, H. K. C.	98.232 Cosmological constraints from the 100-deg^2 weak-lensing survey	10/2007	A Z E F L X D R C S U
3	2007arXiv0709.1159J Johnston, David E.; Sheldon, Erin S.; Wechsler, Risa H.; Rozo, Eduardo; Koester, Benjamin P.; Frieman, Joshua A.; McKay, Timothy A.;	98.022 Cross-correlation Weak Lensing of SDSS galaxy Clusters II: Cluster Density Profiles and the Mass--Richness Relation	09/2007	A Z X C U

Keyword Search:

- Most relevant
- Most recent
- Most important

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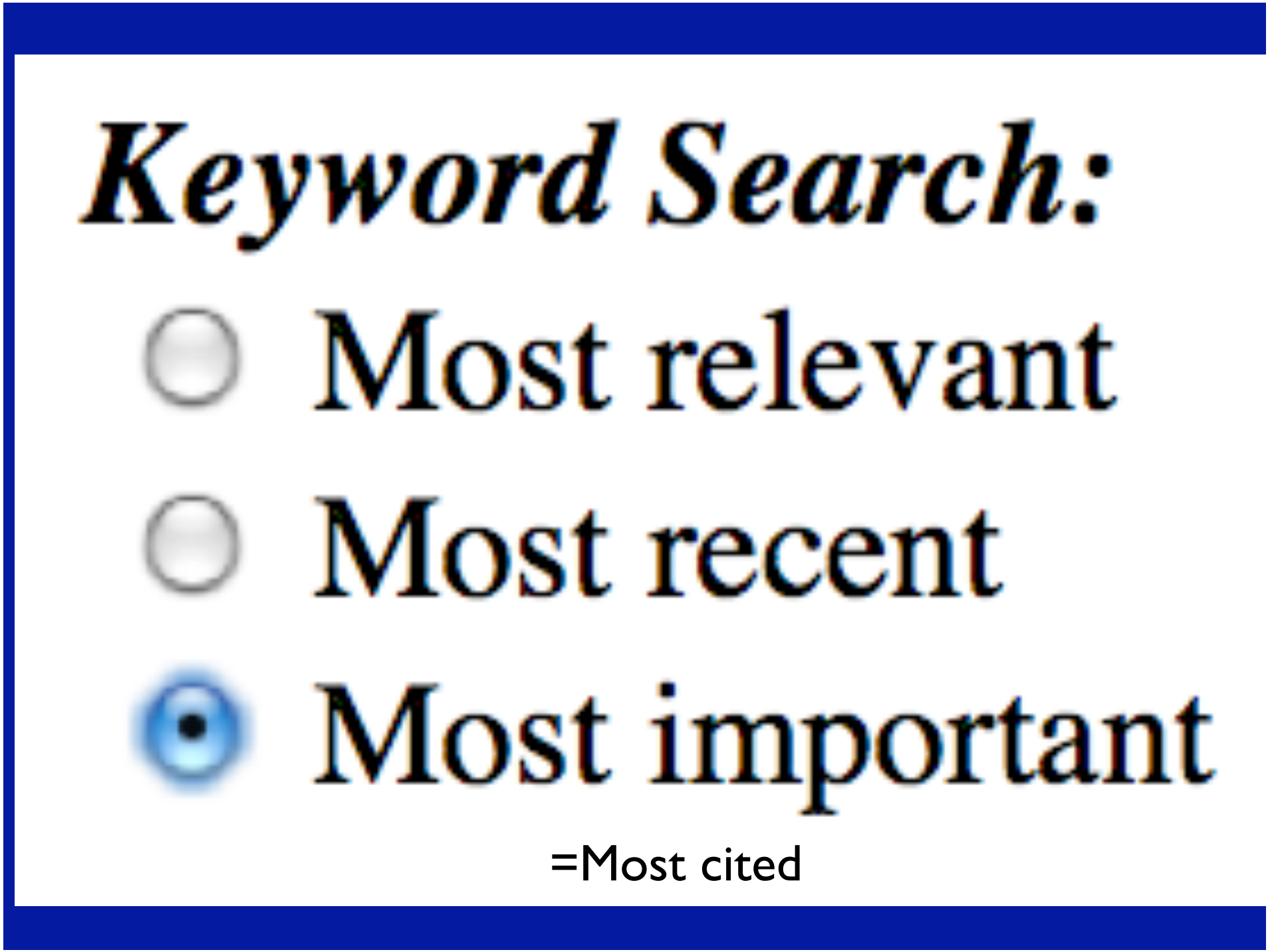
Retrieved **200** abstracts, starting with number **1**. Total number selected: **2239**.

Sort options

#	Bibcode Authors	Score	Date	List of Links Access Control Help	Title
1	2009MNRAS.398.2134K Kitching, T. D.; Amara, A.	1.000	10/2009	A Z E F L X R C U	Fisher matrix decomposition for dark energy prediction
2	2009ASPC..408..328J Jing, Y. P.; Jiang, C. Y.; Okunmura, T.; Faltenbacher, A.; Li, C.; Lin, W. P.	1.000	10/2009	A Z E L T R	Mergers of Galaxies and Orientation of Giant Elliptical Galaxies
3	2009ApJ...703.2285K Knebe, Alexander; Llinares, Claudio; Wu, Xufen; Zhao, Hong Sheng	1.000	10/2009	A Z E F L X R U	On the Separation Between Baryonic and Dark Matter: Evidence for Phantom Dark Matter?
4	2009ApJ...703.2232S Sheldon, Erin S.; Johnston, David E.; Masjedi, Morad; Mc Kay, Timothy A.; Blanton, Michael R.; Scranton, Ryan; Wechsler, Risa H.; Koester, Benjamin P.; Hansen, Sarah M.; Frieman, Joshua A.; Annis, James	1.000	10/2009	A Z E F L R	Cross-correlation Weak Lensing of SDSS Galaxy Clusters. III. Mass-to-Light Ratios
5	2009ApJ...703.2217S Sheldon, Erin S.; Johnston, David E.; Scranton, Ryan; Koester, Benjamin P.; Mc Kay, Timothy A.; Oyaizu, Hiroaki; Cunha, Carlos; Lima, Marcos; Lin, Huan;	1.000	10/2009	A Z E F L X R C U	Cross-correlation Weak Lensing of SDSS Galaxy Clusters. I. Measurements


Keyword Search:
Most relevant
Most recent
Most important
=Most cited

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Sort options

#	Bibcode Authors	Cites Title	Date	List of Links Access Control Help
1	2001PhR...340..291B Bartelmann, M.; Schneider, P.	500.000 Weak gravitational lensing	01/2001	A Z E F L X R C U H
2	1995ApJ...449..460K Kaiser, Nick; Squires, Gordon; Broadhurst, Tom	318.000 A Method for Weak Lensing Observations	08/1995	A Z F G X R C U
3	1999ARA&A..37..127M Mellier, Yannick	307.000 Probing the Universe with Weak Lensing	00/1999	A Z E F L X R C S U H
4	2000A&A...358...30V Van Waerbeke, L.; Mellier, Y.; Erben, T.; Cuillandre, J. C.; Bernardeau, F.; Maoli, R.; Bertin, E.; Mc Cracken, H. J.; Le Fèvre, O.; Fort, B.; and 3 coauthors	264.000 Detection of correlated galaxy ellipticities from CFHT data: first evidence for gravitational lensing by large-scale structures	06/2000	A Z F G X R C U H
5	2006ApJ...648L.109C Clowe, Douglas; Bradač, Maruša; Gonzalez, Anthony H.; Markevitch, Maxim; Randall, Scott W.; Jones, Christine; Zaritsky, Dennis	255.000 A Direct Empirical Proof of the Existence of Dark Matter	09/2006	A Z E F L X D R C S N U

2nd Order Operators

- Use the properties of the results of an initial query to form a new query
- Example: People who bought *these books* also bought
- In ADS using cites and reads since 1996

Subject Area Search:

- Most popular
- Most useful
- Most instructive

1. Get most recent 200 papers containing phrase
2. Find all readers who read one or more of these papers within the last three months
3. Find all papers read by these readers
4. Sort by frequency of use

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Sort options

#	Bibcode Authors	Reads Title	Date	List of Links Access Control Help				
1	2009arXiv0907.0486K Kratochvil, Jan M.; Haiman, Zoltán; May, Morgan	1286.000 Probing Cosmology with Weak Lensing Peak Counts	07/2009	A Z	X	R C		U
2	2009arXiv0907.1660P Percival, Will J.; Reid, Beth A.; Eisenstein, Daniel J.; Bahcall, Neta A.; Budavari, Tamas; Fukugita, Masataka; Gunn, James E.; Ivezic, Zeljko; Knapp, Gillian R.; Kron, Richard G.; and 16 coauthors	1254.000 Baryon Acoustic Oscillations in the Sloan Digital Sky Survey Data Release 7 Galaxy Sample	07/2009	A Z	X	R C		U
3	2009arXiv0907.1659R Reid, Beth A.; Percival, Will J.; Eisenstein, Daniel J.; Verde, Licia; Spergel, David N.; Skibba, Ramin A.; Bahcall, Neta A.; Budavari, Tamas; Fukugita, Masataka; Gott, J. Richard; and 18 coauthors	1254.000 Cosmological Constraints from the Clustering of the Sloan Digital Sky Survey DR7 Luminous Red Galaxies	07/2009	A Z	X	R C		U
4	2009arXiv0907.4371H Hilbert, Stefan; White, Simon D. M.	1226.000 Abundances, masses, and weak-lensing mass profiles of galaxy clusters as a function of richness and luminosity in LambdaCDM cosmologies	07/2009	A Z	X	R		U

Subject Area Search:

- Most popular
- Most useful
- Most instructive

1. Get most relevant 200 papers containing phrase
2. Find all papers cited in the reference sections of those papers
3. Sort by frequency

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Retrieved **200** abstracts, starting with number **1**. Total number selected: **2651**. Total references: **9225**

Sort options

#	Bibcode Authors	Cites Title	Date	List of Links Access Control Help
1	2001PhR...340..291B Bartelmann, M.; Schneider, P.	71.000 Weak gravitational lensing	01/2001	A Z E F L X R C U H
2	2007MNRAS.376...13M Massey, Richard; Heymans, Catherine; Bergé, Joel; Bernstein, Gary; Bridle, Sarah; Clowe, Douglas; Dahle, Håkon; Ellis, Richard; Erben, Thomas; Hetterscheidt, Marco; and 21 coauthors	50.000 The Shear Testing Programme 2: Factors affecting high-precision weak-lensing analyses	03/2007	A Z E F L X D R C U
3	2006MNRAS.368.1323H Heymans, Catherine; Van Waerbeke, Ludovic; Bacon, David; Berge, Joel; Bernstein, Gary; Bertin, Emmanuel; Bridle, Sarah; Brown, Michael L.; Clowe, Douglas; Dahle, Håkon; and 15 coauthors	44.000 The Shear Testing Programme - I. Weak lensing analysis of simulated ground-based observations	05/2006	A Z E F G X R C U
4	2003MNRAS.341.1311S Smith, R. E.; Peacock, J. A.;	43.000 Stable clustering, the halo model and non-linear cosmological power spectra	06/2003	A Z E F G X R C U H

Subject Area Search:

- ○ Most popular
- ○ Most useful
- ◉ Most instructive

1. Get most important (cited) 200 papers containing phrase
2. Find all papers which cite any of these papers
3. Sort by number of papers cited

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Retrieved **200** abstracts, starting with number **1**. Total number selected: **5825**. Total citations: **16885**

Sort options

#	Bibcode Authors	Cites Title	Date	List of Links Access Control Help
1	2006glsw.book..269S Schneider, P.	84.000 Weak Gravitational Lensing	00/2006	A Z E L X R C U
2	2008PhR...462...67M Munshi, Dipak; Valageas, Patrick; van Waerbeke, Ludovic; Heavens, Alan	67.000 Cosmology with weak lensing surveys	06/2008	A Z E F L X R C U
3	2003ARA&A..41..645R Refregier, Alexandre	63.000 Weak Gravitational Lensing by Large-Scale Structure	00/2003	A Z E F L X R C U H
4	2008ARNPS..58...99H Hoekstra, Henk; Jain, Bhuvnesh	50.000 Weak Gravitational Lensing and Its Cosmological Applications	11/2008	A Z L X R C U
5	2003astro.ph..6465S Schneider, Peter	46.000 Gravitational lensing as a probe of structure	06/2003	A Z X R C U H
6	2006MNRAS.368.1323H Heymans, Catherine; Van Waerbeke, Ludovic; Bacon, David; Berge, Joel; Bernstein, Gary; Bertin, Emmanuel;	42.000 The Shear Testing Programme - I. Weak lensing analysis of simulated ground-based observations	05/2006	A Z E F G X R C U

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2009arXiv0909.1318M: Merritt: The Distribution of Stars and Stellar Remnants at the Galactic Center
2009arXiv0908.2996S: Shaw,+: Optical Spectroscopy of Bright Fermi LAT Blazars

+REDSHIFT COSMOLOGY, etc - Recent Papers

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2009arXiv0909.3517G: Gonzalez,+: The Stellar Mass Density and Specific Star Formation Rates of the Universe at z~7

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2009arXiv0907.4766T: Taylor,+: On the Dearth of Compact, Massive, Red Sequence Galaxies in the Local Universe
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2009arXiv0907.1659R: Reid,+: Cosmological Constraints from the Clustering of the Sloan Digital Sky Survey DR7 Luminous Red Galaxies
2009arXiv0907.4156E: Eales,+: BLAST: the Redshift Survey
2009MNRAS.tmp.1256C: Cardamone,+: Galaxy Zoo Green Peas: discovery of a class of compact extremely star-forming galaxies

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2003MNRAS.344.1000B: Bruzual,+: Stellar population synthesis at the resolution of 2003
1996A&AS..117..393B: Bertin,+: SExtractor: Software for source extraction.
1998ApJ...500..525S: Schlegel,+: Maps of Dust Infrared Emission for Use in Estimation of Reddening and Cosmic Microwave Background Radiation Foregrounds
2009ApJS..180..330K: Komatsu,+: Five-Year Wilkinson Microwave Anisotropy Probe Observations: Cosmological Interpretation
2000AJ....120.1579Y: York,+: The Sloan Digital Sky Survey: Technical Summary

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2009arXiv0909.4305G: Guo,+: How do galaxies populate Dark Matter halos?
2009arXiv0909.3527N: Newman,+: The Distribution of Dark Matter Over 3 Decades in Radius in the Lensing Cluster Abell 611
2009arXiv0909.4053B: Barmby,+: An HST/WFPC2 Survey of Bright Young Clusters in M31 III. Structural Parameters
2009arXiv0909.3857S: Sale,+: The Structure of the Outer Galactic Disc as revealed by IPHAS early A Stars

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2009arXiv0909.3298K: Kalirai,+: The SPLASH Survey: A Spectroscopic Analysis of the Metal-Poor, Low-Luminosity M31 dSph Satellite Andromeda X
2009arXiv0909.4305G: Guo,+: How do galaxies populate Dark Matter halos?
2009arXiv0909.4167P: Piontek,+: The Modelling of Feedback Processes in Cosmological Simulations of Disk Galaxy Formation
2009arXiv0909.4298Z: Zemp: The Structure of Cold Dark Matter Halos: Recent Insights from High Resolution Simulations
2009arXiv0909.4403V: Viola,+: Dark matter halos inner slope from weak gravitational lensing

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2009ApJ...703L..67L: Law,+: Evidence for a Triaxial Milky Way Dark Matter Halo from the Sagittarius Stellar Tidal Stream
2008ApJ...684.1143X: Xue,+: The Milky Way's Circular Velocity Curve to 60 kpc and an Estimate of the Dark Matter Halo Mass from the Kinematics of ~2400 SDSS Blue Horizontal-Branch Stars
2009ApJ...701..776G: Gilbert,+: The Dominance of Metal-rich Streams in Stellar Halos: A Comparison Between Substructure in M31 and LambdaCDM Models

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1997ApJ...490..493N: Navarro,+: A Universal Density Profile from Hierarchical Clustering
1996ApJ...462..563N: Navarro,+: The Structure of Cold Dark Matter Halos
2009ApJS..180..330K: Komatsu,+: Five-Year Wilkinson Microwave Anisotropy Probe Observations: Cosmological Interpretation
2001MNRAS.321..559B: Bullock,+: Profiles of dark haloes: evolution, scatter and environment
2005MNRAS.364.1105S: Springel: The cosmological simulation code GADGET-2

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2009arXiv0909.3853B: Bean: A weak lensing detection of a deviation from General Relativity on cosmic scales
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+REDSHIFT COSMOLOGY, etc - Most Popular

2009arXiv0907.4766T: Taylor,+: On the Dearth of Compact, Massive, Red Sequence Galaxies in the Local Universe
2009arXiv0907.1660P: Percival,+: Baryon Acoustic Oscillations in the Sloan Digital Sky Survey Data Release 7 Galaxy Sample
2009arXiv0907.1659R: Reid,+: Cosmological Constraints from the Clustering of the Sloan Digital Sky Survey DR7 Luminous Red Galaxies
2009arXiv0907.4156E: Eales,+: BLAST: the Redshift Survey
2009MNRAS.tmp.1256C: Cardamone,+: Galaxy Zoo Green Peas: discovery of a class of compact extremely star-forming galaxies

+REDSHIFT COSMOLOGY, etc - Most Cited

2003MNRAS.344.1000B: Bruzual,+: Stellar population synthesis at the resolution of 2003
1996A&AS..117..393B: Bertin,+: SExtractor: Software for source extraction.
1998ApJ...500..525S: Schlegel,+: Maps of Dust Infrared Emission for Use in Estimation of Reddening and Cosmic Microwave Background Radiation Foregrounds
2009ApJS..180..330K: Komatsu,+: Five-Year Wilkinson Microwave Anisotropy Probe Observations: Cosmological Interpretation
2000AJ....120.1579Y: York,+: The Sloan Digital Sky Survey: Technical Summary

Field name
GALAXIES SubmillimeteR Redshift dust

Field size
220 articles and 0.77507 percent of all traffic
[Most Popular]
[Most Instructive]

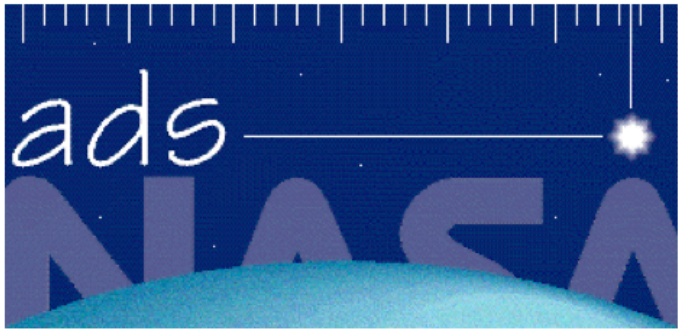
Top 10 journals in field

* Smail, Ian: Radio Constraints on the Identifications and Redshifts of Submillimeter Galaxies
* Calzetti, Daniela: The Dust Content and Opacity of Actively Star-forming Galaxies
* Yun, M. S.: Sensitive Radio Observations of High-Redshift Dusty QSOs
* Barger, A. J.: Mapping the Evolution of High-Redshift Dusty Galaxies with Submillimeter Observations of a Radio-selected Sample
* Carilli, C. L.: The Scatter in the Relationship between Redshift and the Radio-to-Submillimeter Spectral Index
* Ivison, R. J.: The diversity of SCUBA-selected galaxies
* Lisenfeld, U.: Dust and gas in luminous infrared galaxies - results from SCUBA observations
* Dunne, Loretta: The SCUBA Local Universe Galaxy Survey - I. First measurements of the submillimetre luminosity and dust mass functions
* Adelberger, Kurt L.: Multiwavelength Observations of Dusty Star Formation at Low and High Redshift
* Granato, G. L.: The Infrared Side of Galaxy Formation. I. The Local Universe in the Semianalytical Framework

User-Based Browse

1. Create hierarchal system of user clusters based on shared papers referenced by read papers
2. For each (sub) cluster get all reads by group members
3. Sort top of most-read list by date (latest to the top)
4. Iterate

HOT TOPICS
Planets
Solar Corona
Protostars
Circunstellar Disks
MW Dwarf Galaxies
Black Holes
X-Rays
Gamma Rays
Galaxy Formation
CMB



The SAO/NASA Astrophysics Data System

HOT Papers

2009Natur.458...53B Boroson,+ : A candidate sub-parsec supermassive binary black hole system

2009Sci...323..754K Krumholz,+ : The Formation of Massive Star Systems by Accretion

2009ApJS..180..330K Komatsu,+ : Five-Year Wilkinson Microwave Anisotropy Probe Observations: Cosmological Interpretation

2009ApJS..180..306D Dunkley,+ : Five-Year Wilkinson Microwave Anisotropy Probe Observations: Likelihoods and Parameters from the WMAP Data

2009ApJ...692L..19S Schawinski,+ : Do Moderate-Luminosity Active Galactic Nuclei Suppress Star Formation?

2009ApJ...691L.142K Kormendy,+ : Correlations between Supermassive Black Holes, Velocity Dispersions, and Mass Deficits in Elliptical Galaxies with Cores

2009Natur.457..451D Dekel,+ : Cold streams in early massive hot haloes as the main mode of galaxy formation

HOT TOPICS in MW Dwarf Galaxies

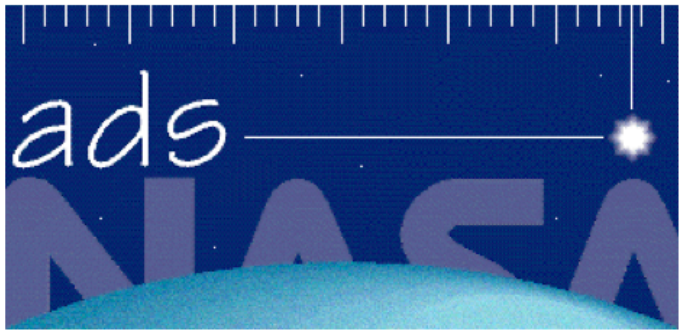
Metal Poor Stars

MW Halo Substructure

MW Globular Clusters

SPH codes/High-res Spectra

SMBH in MW



The SAO/NASA Astrophysics Data System

HOT Papers in MW Dwarf Galaxies

2009ApJ...693L..19H Herrmann,+ : Kinematic Evidence for Halo Substructure in Spiral Galaxies

2009arXiv0902.3492B Bullock,+ : Dwarf Galaxies in 2010: Revealing Galaxy Formation's Threshold and Testing the Nature of Dark Matter

2009arXiv0902.2759M Majewski,+ : Galactic Dynamics and Local Dark Matter

2009arXiv0902.2591K Kirby,+ : The Role of Dwarf Galaxies in Building Large Stellar Halos

2009arXiv0902.2395F Frebel,+ : High-Resolution Spectroscopy of Extremely Metal-Poor Stars in the Least Evolved Galaxies: Ursa Major II and Coma Berenices

2009arXiv0902.1983K Kazantzidis,+ : Cold Dark Matter Substructure and Galactic Disks II: Dynamical Effects of Hierarchical Satellite Accretion

2009arXiv0902.0775S Stinson,+ : Feedback and the Formation of Dwarf Galaxy Stellar Halos

2009ApJ...692.1464G Geha,+ : The Least-Luminous Galaxy: Spectroscopy of the Milky Way Satellite Segue 1

MW Globular Clusters

The SAO/NASA Astrophysics Data System

HOT Papers on MW Globular Clusters

2009arXiv0904.1626A Anderson,+ : Mixed Populations in Globular Clusters: Et Tu, 47 Tuc?

2009ApJ...695L..62Y Yong,+ : A Large C+N+O Abundance Spread in Giant Stars of the Globular Cluster NGC 1851

2009ApJ...694.1498M Marín-Franch,+ : The ACS Survey of Galactic Globular Clusters. VII. Relative Ages

2009A&A...497..755M Milone,+ : Multiple stellar populations in Magellanic Cloud clusters. I. An ordinary feature for intermediate age globulars in the LMC?

2009arXiv0903.3924V Villanova,+ : The Helium content of Globular Clusters: light element abundance correlations and HB morphology. I. NGC6752

2009arXiv0903.2839B Bedin,+ : The End of the White Dwarf Cooling Sequence in M4: an efficient approach

2009arXiv0902.1422P Piotto : Observations of multiple populations in star clusters

2009A&A...493..959B Bellini,+ : Ground-based CCD astrometry with wide field imagers. III.

Recommend

- No user interaction
- What do we know about the user's current need?
- Example: user is currently reading an article
- Could also use history of user/similar user behavior, but not yet

Recommend

- A complicated process

1. Get normalized key words 991 E.H.
2. Make 991 dim vectors for each paper by KW frequency in the referenced papers
3. Create user vectors as sum of read papers
4. Create vector space using SVD
5. Fit papers to most significant SVD vectors(50)

6. Cluster papers (64) in the ~50 dim SVD vector space
7. Create an SVD vector sub-space for each cluster of papers
8. Fit papers in each cluster to most significant (5) SVD vectors for relevant subcluster
9. For the paper being read, find the nearest ~40 papers in the relevant sub-space
10. Use these papers to increase the S/N for the different recommender operators

Most after-read, most before-read, most co-read, most recent also-read, most also-read, most cited, most citing:

For the paper: 2005MNRAS.359..308Z, On the influence of relativistic effects on X-ray variability of accreting black holes

Most after-read: 2008ApJ...679L..37L, Precise Measurement of the Spin Parameter of the Stellar-Mass Black Hole M33 X-7

Most before-read: 2006ApJ...652..518M, The Spin of the Near-Extreme Kerr Black Hole GRS 1915+105

Most co-read: 2006ApJ...646..394M, Simultaneous Chandra and RXTE Spectroscopy of the Microquasar H1743-322: Clues to Disk Wind and Jet Formation from a Variable Ionized Outflow

Most recent also-read: 2009NewA...14..674F, What is the closest black hole to the Sun?

Most also-read: 2009ApJ...695..888U, GRS 1915+105 in "Soft State": Nature of Accretion Disk Wind and Origin of X-ray Emission

Most cited: 1973A&A....24..337S, Black holes in binary systems. Observational appearance.

Most citing: 2007ARA&A..45..441M, Relativistic X-Ray Lines from the Inner Accretion Disks Around Black Holes

On the influence of relativistic effects on X-ray variability of accreting black holes

Życki, Piotr T.; Niedźwiecki, Andrzej

Monthly Notices of the Royal Astronomical Society, Volume 359, Issue 1, pp. 308-314.

X-rays produced by compact flares corotating with a Keplerian accretion disc are modulated in time by Doppler effects. We improve on previous calculations of these effects by considering recent models of intrinsic X-ray variability, and we compute the expected strength of the relativistic signal in current data of Seyfert galaxies and black hole binaries. Such signals can clearly be seen in, for example, recent XMM-Newton data from MCG-6-30-15, if indeed the X-rays are produced by corotating flares concentrated toward the inner disc edge around an extreme Kerr black hole. The lack of the signal in the data collected so far gives support to models where the X-ray sources in active galaxies do not follow Keplerian orbits close to the black hole.

Keywords: accretion, accretion discs - relativity - galaxies: active - X-rays: binaries - X-rays: individual: MCG-6-30-15.

DOI: *10.1111/j.1365-2966.2005.08887.x*

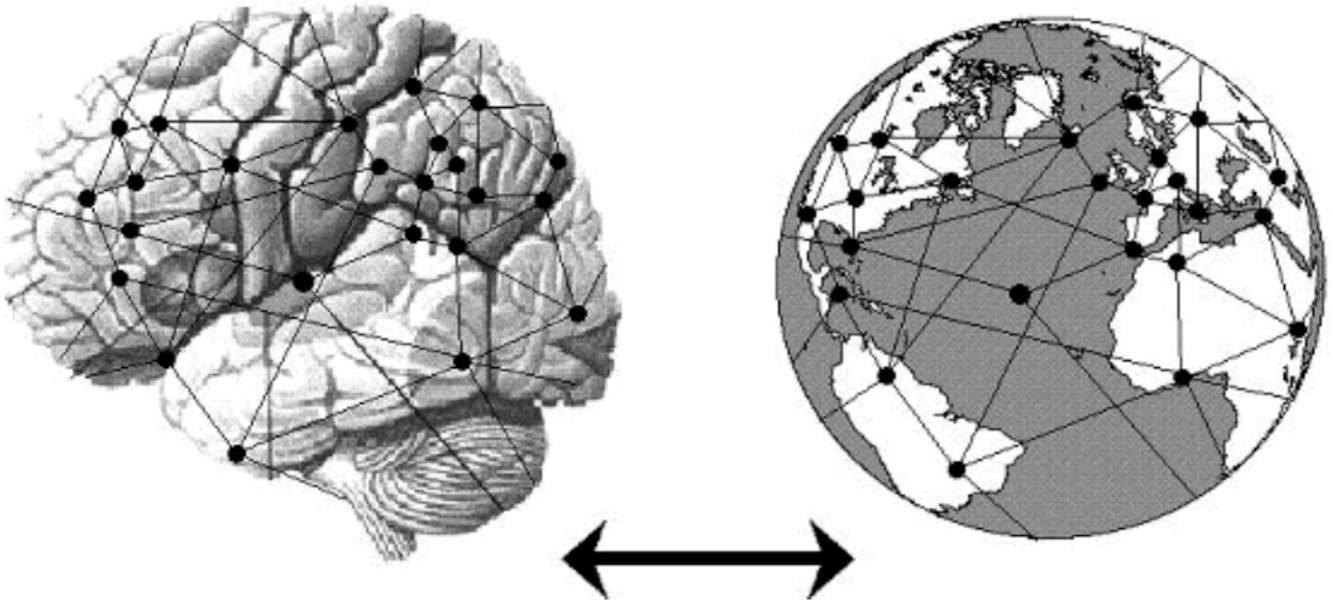
A Densely Interconnected World: Knowledge Engineering

- Semantic interlinking of literature with data (OAI-ORE, …)
- Connecting tools and procedures with each other and their results (Work-Flow, …))
- There is no best bridge, building, … design

Final Program

From Intelligent Networks to the Global Brain

The First Global Brain Workshop



July 3-5, 2001

Vrije Universiteit Brussel, Brussels, Belgium