

What is SIMBAD ? And what is it not ?



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□ From 1972 to now

SIMBAD started in 1972, first devoted to stars

All astronomical objects included in 1982

Contains currently

- 8.5 millions objects
- 23.5 millions names (identifiers)
- 324000 references

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- SIMBAD is a meta-compilation based on scientific publications

Purposes of SIMBAD

- Provide the bibliography on objects of interest studied in the literature
- Provide « basic » or « fundamental » data on these objects
- Perform cross-identifications
- Help researchers to find out what is known, unknown, still debated

Does SIMBAD contain everything ?

- Conceivable until the early 90s
- Not suitable anymore with very (extremely) large surveys
- Not interesting either, would add noise :
 - ROSAT & IRAS : 50 % unstudied
 - Tycho2, included in view of GAIA : 75 % unstudied
 - 2MASS ? Expected 80-90 % unstudied

Which objects are in SIMBAD ?

- Analysis of 8000-9000 journal articles/year
- New objects identified in the text and figures are added to Simbad
- Basic data are updated when required
- All published tables of objects are analysed
- Appraised and prioritised by Astronomers and Documentalists
 - With scientific and technical criteria

Prioritisation of lists of objects

- **High priority : 70 %**

spectroscopy, characterization, cross-identifications, membership, ...

- **Low priority : 15 %**

nature unclear, poor coordinates, incorrect or truncated names, ...

- **Not processed : 15 %**

no coordinates, uncharacterized in crowded regions, very large photometric surveys

Which data are in SIMBAD ?

- Object types, more than 200
- Coordinates, proper motions, parallaxes
- Spectral / morphological types
- Velocities / redshifts .
New : LSR velocities
- Size of extended objects
- Compilation of individual observations :
velocities/redshifts, spectral types, variability,
metallicity, ...

Expertise of the CDS team

- Interactions between 3 groups :
 - **documentalists, software engineers, and astronomers**
- Detailed instructions set up in appraisal meetings
- Cross-identifications : comparison of positions, objects types, magnitudes, velocities/redshifts
- Dedicated programs + scripts for tables, ***but always requires expertise***
- ***Special operations*** are done to improve astrometry and basic data : 2MASS, Tycho2, Glimpse, historical and rare objects

What you should know about SIMBAD

- **All the data come from the literature**
- By construction the data are heterogeneous : SIMBAD is not a catalogue
- Astrometry from 10 mas to 1 degree
- All types of astronomical objects *[outside the solar system]*
- A source can have contradictory object types : fundamental research evolves !
- Bibcodes going back 10 years, but missing for older publications
- Measurement uncertainties now systematically included - *if known !*

SDSS J032428.78-004613.8

other query modes : Identifier query Coordinate query Criteria query Reference query Basic query Script submission TAP Output options Help

Query : SDSS J032428.78-004613.8

C.D.S. - SIMBAD4 rel 1.5.10 - 2016.10.14CEST09:04:40

Available data : Basic data • Identifiers • Plot & images • Bibliography • Measurements • External archives • Notes • Annotations

Basic data :

SDSS J032428.78-004613.8 -- Object of unknown nature

Other object types: ** ([HHD2009],[SHW2006],...), **WD*** (Ref,WD), **AGN** ([VV2003c],[VV2010c]), ? (SDSS,2SLAQ), **IR** (2MASS,WISE), **SB*** (Ref), * (USNO), **QSO** (Ref)

ICRS coord. (*ep=J2000*) : **03 24 28.777 -00 46 13.07 (Near-IR) [280 260 43] B 2003yCat.2246...0C**

FK5 coord. (*ep=J2000 eq=2000*) : 03 24 28.777 -00 46 13.07 [280 260 43]

FK4 coord. (*ep=B1950 eq=1950*) : 03 21 55.81 -00 56 46.5 [280 260 43]

Gal coord. (*ep=J2000*) : 183.7323 -44.8206 [280 260 43]

Radial velocity / Redshift / cz : **V(km/s) 57220 [15] / z(spectroscopic) 0.21317 [0.00005] / cz 63906.8 [15.0]**
(Opt) **C 2012ApJS...203...21A**

Spectral type: **DA+dM D 2006AJ...131.1674S**

Fluxes (11) : **B 18.90 [-] D 2010A&A...518A..10V**

V 18.43 [-] D 2010A&A...518A..10V

R 18.6 [-] E 2003AJ...125..984M

J 17.015 [0.200] D 2003yCat.2246...0C

H 16.089 [0.203] D 2003yCat.2246...0C

K 15.606 [0.225] D 2003yCat.2246...0C

u (AB) 19.142 [0.023] C 2013yCat.5139...0A

g (AB) 18.977 [0.009] B 2013yCat.5139...0A

r (AB) 18.635 [0.009] B 2013yCat.5139...0A

i (AB) 18.281 [0.009] B 2013yCat.5139...0A

z (AB) 18.070 [0.023] C 2008ApJS...175..297A

SIMBAD query around with radius 2 arcmin

Interactive AladinLite view

03 24 32.777 -00 45 31.63



FoV: 1.99'

2MASS DSS SDSS

VizieR photometry viewer Search within radius Max 30 arcsec

notes:

- Classified galaxy with redshift 0.213 in the SDSS-DR9. Rejected as an AGN in the Veron & Veron catalogue 12th edition (2006A&A...455..773V), but appears again as an AGN in the 13th edition (2010A&A...518A..10V). Classified 3 times as a white + M dwarf (see MK measurements). [13-Oct-2016].



Measurements (3 types) :

mk : 4 **velocities : 2** **z : 2**

display selected measurements

display all measurements

clear

mk (4)

ds/mss	Spectral type	reference
/	DA+dM	2006AJ...131.1674S
/	DA+dM	2007AJ...134..741S
/	DA + M:	2004ApJ...607..426K
/	M4Ve	2003AJ...125.2621R

velocities (2)

typ	Value	R	m.e.	A (Nmes)	na,Q,dom , res D	Obs.date	Rem.	Or	Reference
z	0.21309			()	, , ,				2008ApJS..175..297A
z	0.210			()	, , ,				2003AJ...126.2081A

How to use SIMBAD ?

- Several interfaces, several output formats
- Lists of objects/coordinates :
 - Identifier query, Coordinates query, Script query, Xmatch service
 - html, VOTable, ascii
- Data mining :
 - Criteria query, TAP (ADQL) query, SQL
 - html, VOTable, ascii, csv
 - Preliminary tuning, knowledge of the content
 - Further analysis, especially for Xmatch

SIMBAD & VizieR : complementary

- VizieR :
 - Published tables with more than 100 objects, 14700 catalogues (today)
 - Most very large surveys : SDSS, 2MASS, UCAC, USNO, WISE, ...
- Your object is not in SIMBAD ?
 - Not studied in articles, or not processed yet
 - It is very likely in some VizieR catalogues
 - All the VizieR tables can be searched by position at once
- Think about using the CDS **Portal** :
SIMBAD + ALADIN + VIZIER

CDS at ADSSS XXVI

- Come and talk to us at the booth !
 - How to use SIMBAD in your services
 - Technical questions on CDS services
 - SIMBAD HiPS
- More about what is in SIMBAD
 - Poster 4.11 by Anais Oberto