

## What is NED?

NED is the world's largest database of cross-correlated multiwavelength data for extragalactic objects. NED provides a portal into a systematic fusion of information integrated from hundreds of large sky surveys and tens of thousands of research publications. The contents and services span the entire observed spectrum from gamma rays through radio frequencies. As new observations are published, they are cross-identified or statistically associated with previous data and fused in a unified database to simplify queries and retrieval. Seamless connectivity to relevant data in NASA's astrophysics mission archives (IRSA, HEASARC, MAST), ADS, and other data centers around the world are also provided based on cross-identifications in NED.

Objects can be queried *By Name*, *Near Name* or *Near Position* (cone search), *By Reference*, and *By Author*. *By Parameter* (*Advanced All-Sky*)



queries utilize joint constraints on *Redshift*, *Sky Area*, *Object Types*, *Survey Names*, or *Flux Density (Magnitude)* to construct galaxy samples. The *LEVEL5 Knowledgebase* provides review articles in extragalactic astrophysics and cosmology with object names and graphical content within the articles linked directly to relevant database queries. Queries may be submitted via Web browser, email batch forms, and remote computer programs or scripts.

## Holdings as of January 2010

- ▶ 163 million objects
- ▶ 170 million multi-wavelength Cross-IDs
- ▶ 641 thousand object Associations
- ▶ 1.58 million Redshifts
- ▶ 1.72 billion Photometric measurements with SEDs
- ▶ 609 million detailed Diameter measurements
- ▶ 5.26 million objects linked to 73 thousand journal articles
- ▶ 2.3 million Images, maps and external links
- ▶ 268 thousand Spectra
- ▶ 65 thousand object Notes
- ▶ 50 thousand journal article Abstracts
- ▶ 18 thousand redshift-independent Distances for 5 thousand galaxies

## NED Team & Contributors

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## NASA/IPAC EXTRAGALACTIC DATABASE

Operated by the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration.

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## Image Credits

AM 1633-682 (this panel): NASA, ESA, and A. Evans (U. Virginia, Charlottesville/NRAO/Stony Brook University)

Sombrero Galaxy (left panel): NASA/JPL-Caltech/R. Kennicutt (University of Arizona) and the SINGS team

MACS J0025.4-1222 (front panel):  
X-ray (NASA/CXC/Stanford/S.Allen);  
Optical/Lensing(NASA/STScI/UC Santa Barbara/M.Bradac)

Galaxy classification depictions (inside center panel):  
NASA, ESA, NRAO, Clarke et al. 1992, ApJ, 385, 173

NASA/IPAC Extragalactic Database



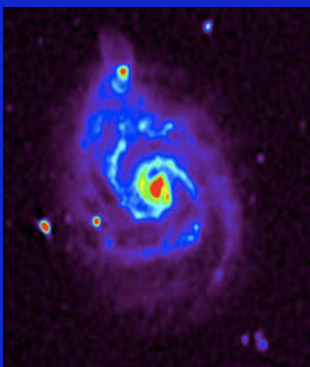
January 2010

# What's New with NED?

## Content Updates

The January 2010 update to NED added data for 288,316 objects linked to 1,804 journal articles and catalogs, new redshifts for 115,439 objects, 453,324 object Associations, and 439,536 photometric measurements. Highlights include:

- ▶ 68,311 objects from "The VLA Low-frequency Sky Survey (VLSS)," Cohen et al 2007, *AJ*, 134, 1245
- ▶ 13,817 objects from Data Release 3 of the DEEP2 Redshift Survey, <http://deep.berkeley.edu/DR3/>
- ▶ 9,452 galaxies from COSMOS-P, Faure et al. 2008, *ApJS*, 176, 19
- ▶ Supernovae reported in the IAU Central Bureau for Astronomical Telegrams (CBATs) up to September 30, 2009
- ▶ Mid-Infrared images from "A Spitzer IRAC Census of the Asymptotic Giant Branch Populations in Local Group Dwarfs. I. WLM," Jackson et al. 2007, *ApJ*, 656, 818
- ▶ Radio continuum images from "The Westerbork SINGS Survey. I. Overview and Image Atlas," Braun et al. 2007, *A&A*, 461, 455
- ▶ 233 thousand spectra from the Final Data Release of the 2dF Galaxy Redshift Survey, Colless et al. 2003, <http://www2.aao.gov.au/2dFGRS/>



Radio continuum images from "The Westerbork SINGS Survey. I. Overview and Image Atlas," Braun et al. 2007, *A&A*, 461, 455

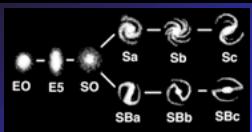
## New in the LEVEL 5 Knowledgebase

- ▶ "Star Formation Histories of Resolved Galaxies," M. Tosi 2009, in *The Ages of Stars*, Proceedings of IAU Symposium 258, p. 61-72
- ▶ "The Challenge of Modeling Galactic Disks," A. Burkert 2009, in *The Galaxy Disk in Cosmological Context*, Proceedings of IAU Symposium 254, p. 437-444
- ▶ "Kinematical Structure of the Magellanic System," R. P. van der Marel, N. Kallivayalil & G. Besla 2009, in *The Magellanic System: Stars, Gas and Galaxies*, Proceedings of IAU Symposium 256, p. 81-92
- ▶ And many more

## Detailed Galaxy Classifications and New Query Functionality

- ▶ Access to over 38 thousand classifications and attributes derived from the RC3 (de Vaucouleurs et al. 1991), RSA (Sandage & Tammann 1981), A Catalogue of Quasars and Active Nuclei: 12th Ed. (Veron-Cetty & Veron 2006), and various journal articles
- ▶ Query reports now include referenced classifications, as-published and homogenized by NED, with links to detailed metadata
- ▶ Galaxy samples can be constructed by filtering on attributes pertaining to four domains:

Galaxy Morphology



Radio Morphology



Spectral Type (Activity)

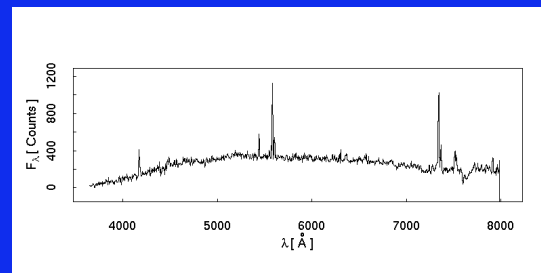


Luminosity Class



## Sample queries:

- ▶ Galaxies with morphological type SBa
- ▶ Spiral galaxies of any sub-type (Sa, Sab, Sc, Sd) that are also barred
- ▶ Galaxies with a "peculiar" morphology and nuclear Spectral Type Seyfert 2
- ▶ Galaxies with Luminosity Class ULIRG and Spectral Type AGN (any subclass)
- ▶ Galaxies with Radio Morphology FR I and Spectral Type LINER



233 thousand spectra from the 2dF Galaxy Redshift Survey, Colless et al. 2003, <http://www2.aao.gov.au/2dFGRS/>

For more information see [http://nedwww.ipac.caltech.edu/help/whats\\_new.html](http://nedwww.ipac.caltech.edu/help/whats_new.html)

## Coming Attractions

### Support for Long-Running Queries and Large Result Tables

Due to the increasing size and complexity of the database, some queries can take longer than a few minutes to complete, and may produce results that are too large for a web browser. A new feature in development will allow users to re-submit queries that do not complete in a few minutes so that the results will be stored in files for pick-up after receipt of email notification when the process is complete.

Data from the current astrophysics literature and new sky survey catalogs are being incorporated on an ongoing basis. If you would like to make your FITS images or spectral data available for use by other researchers via NED, please contact us at [ned@ipac.caltech.edu](mailto:ned@ipac.caltech.edu).