

# The COSMOS information systems at LAM

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## Abstract

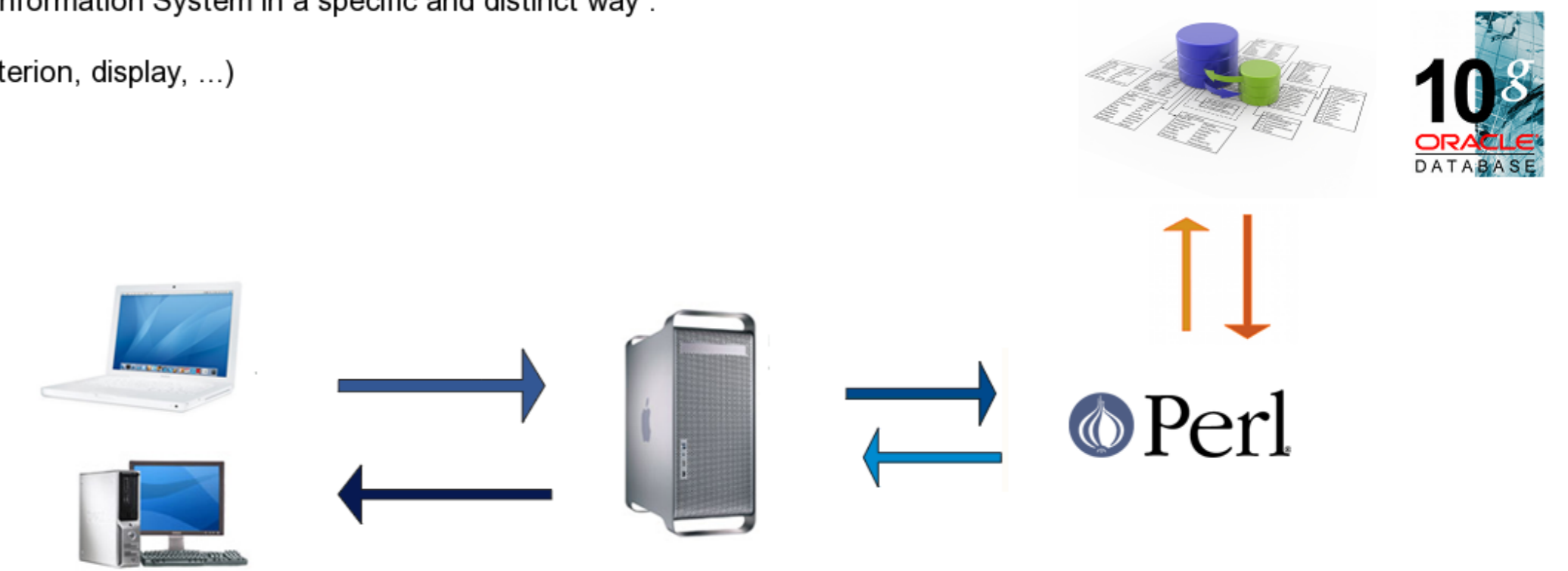
The last decades have witnessed a strong increase in the amount of data coming from astronomical surveys. These data are exploited by large international collaborations of scientists working around the same scientific goals. The regular request of high data-quality control, fast data access via easy-to-use graphic interfaces, as well as the possibility to cross correlate information coming from different observations motivate the use of scientific information systems. We here focalise our attention on the HST-COSMOS and zCOSMOS information systems, recently opened to the scientific community. We are dealing with data coming from the largest ever-undertaken cosmological survey. The associated database has the specificity to archive, visualize and correlate multi-wavelength and spectroscopic datasets.

## CeSAM

The CeSAM (Centre de données Astronomiques de Marseille) data center answers to the aforementioned needs offering a specialized database service to the nowadays largest astrophysical surveys (VVDS, GALEX, HST-COSMOS, Hershel, Corot, etc..).

## Technical solution

We can configure the Information System in a specific and distinct way :  
- datasets definition,  
- Attributes definition (criterion, display, ...)  
- User rights.



## Projects



PI: Nicolas Scoville (California of technology, USA/CA)  
Local Scientist Manager : JP Kneib (CNRS, LAM, France)

The Cosmological Evolution Survey is an astronomical survey designed to probe the formation and evolution of galaxies as function of cosmic time (redshift) and large scale structure environment. The survey covers a 2 square degree equatorial field with imaging by most of the major space based telescopes (Hubble, Spitzer, GALEX, XMM, Chandra) and a number of large ground based telescopes (Subaru, VLA, ESO-VLT, CFHT, and others). Over 2 million galaxies are detected, spanning 75% of the age of the universe. The COSMOS survey involves almost 100 scientists in a dozen countries.

The COSMOS Information System offers access to :  
- Multi-wavelength catalogues  
- BRIGHT & DEEP zCOSMOS spectroscopic catalogues  
- ancillary data  
- Multi bands and superimposed postage-stamps

Data can be searched by general criteria, around position or by SQL query

### Search data by general criteria

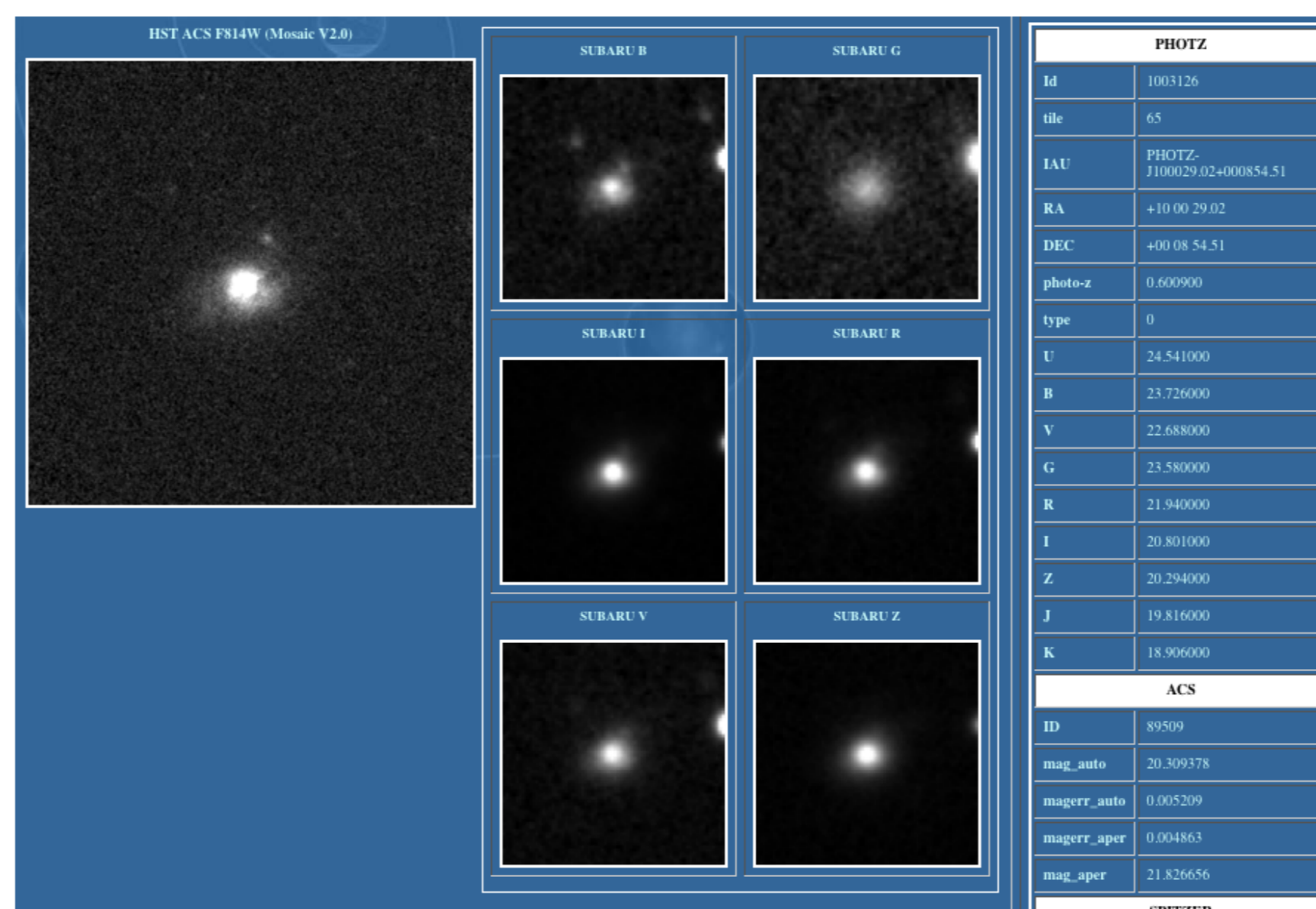
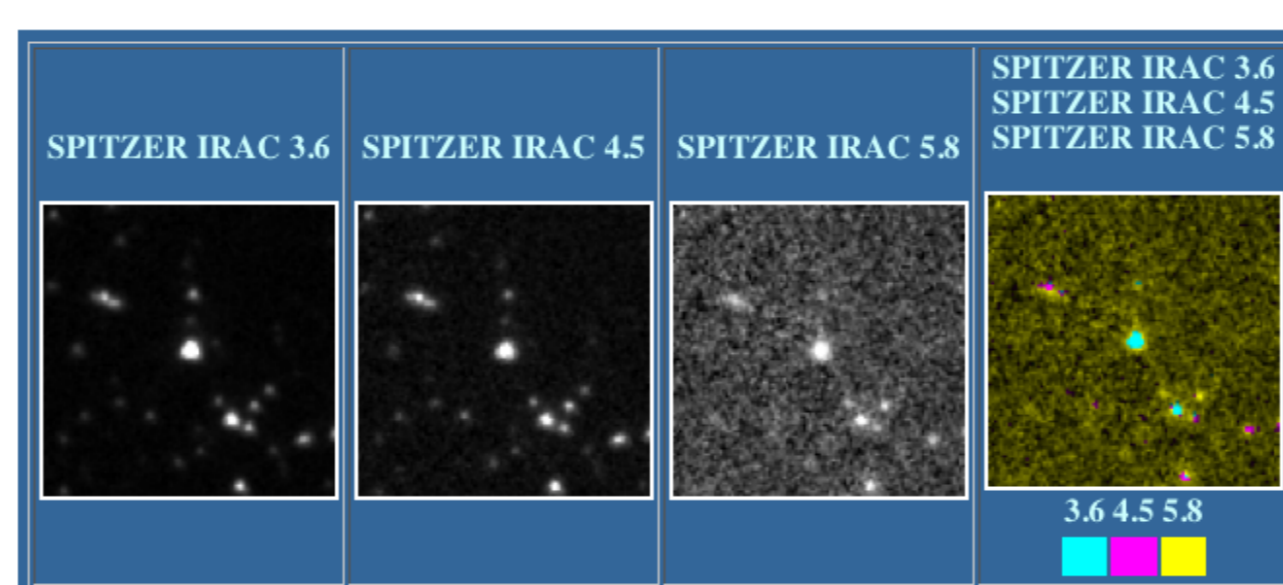
### Search data around position

### Search data by SQL query

### Raw data retrieval

Dataset name	Last update	Full catalogue	Images	Full dataset
ACS	(Sep 2006)	Vo	CS	AS
PHOTZ	(July 2010)	Vo	CS	AS
SPITZER	(Jun 2007 - Sep 2008)	Vo	CS	AS
XMM	(April 2010)	Vo	CS	AS
zCOSMOS 10k BRIGHT	(Oct 2008)	Vo	CS	AS

### The results



PI : Simon Lilly (ETH Zurich)  
Local Scientist Manager : L. Tasca (CNRS, LAM, France)

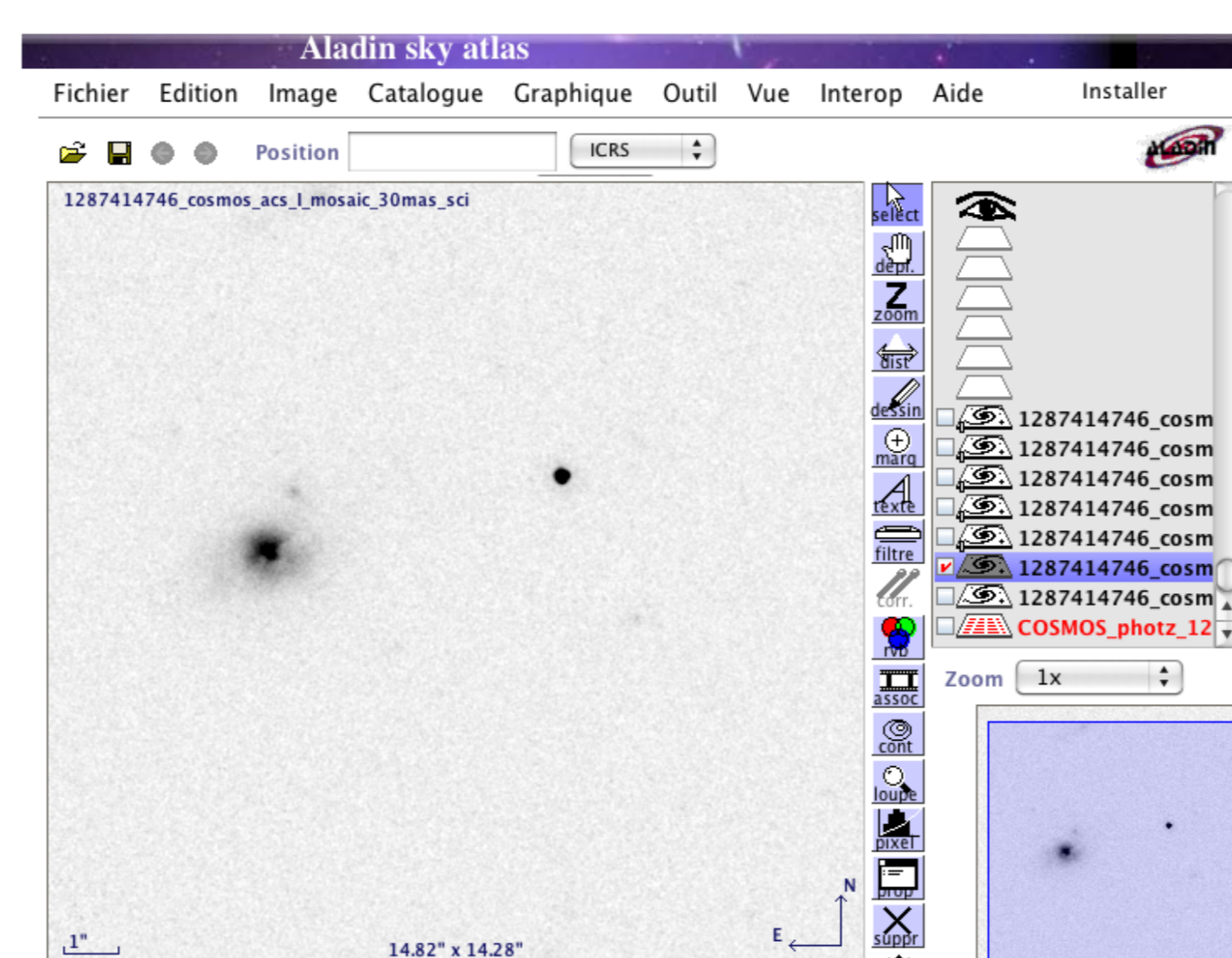
zCOSMOS project is an approved Large Program on the ESO VLT. 600 hours of observation are used to carry out a major redshift survey with the VIMOS spectrograph on the COSMOS field to yield spectra for :  
- approximately 20,000 galaxies at  $0.2 < z < 1.2$  selected to have  $I_{AB} < 22.5$  at a sampling rate of 70%,  
- approximately 10,000 galaxies at  $1.2 < z < 3$  with  $B_{AB} < 25$  and chosen by two colour-selection criteria (B-Z) vs. (Z-K) and (U-B) vs. (V-R) at a sampling rate of 70%.

The zCosmos Information System offers access to  
- BRIGH & DEEP photometric parent catalogues  
- 10k, 20k BRIGHT + 8k DEEP spectroscopy  
- ancillary data (masses, magnitudes, morphology, spectro. features)  
- HST/ACS i-band postage-stamps  
- 1D spectra

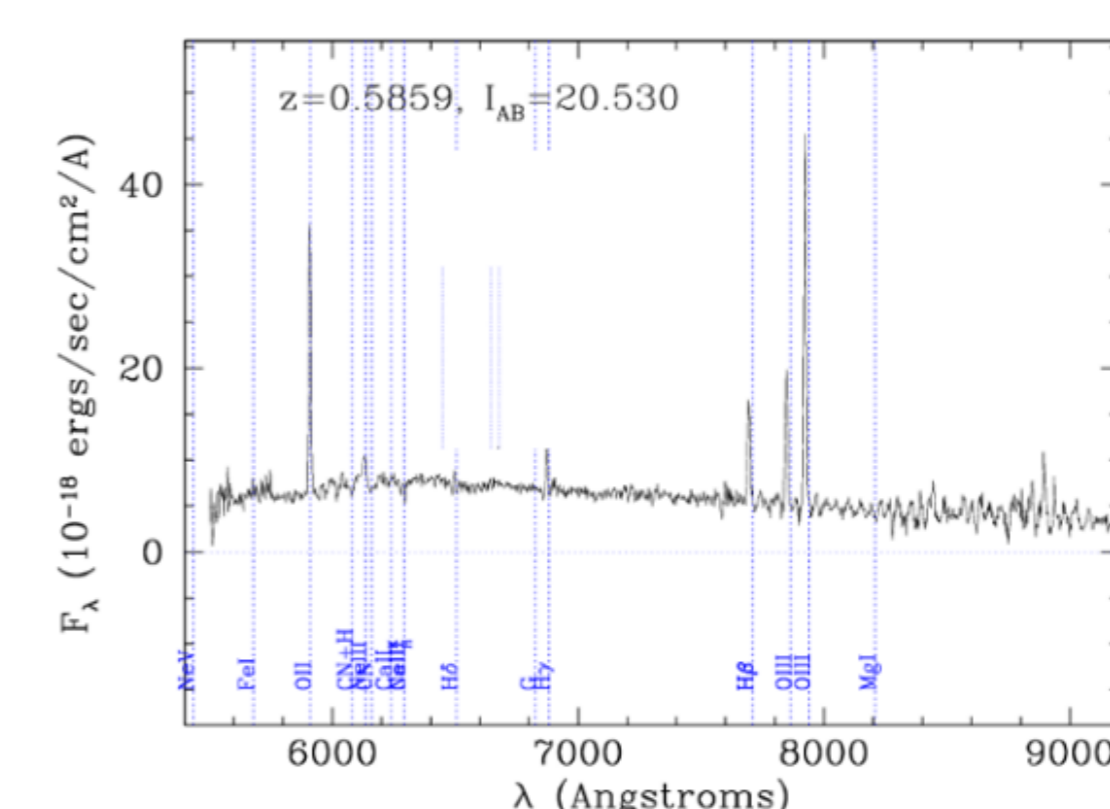
Data can be searched by selection criteria, SQL query or formatted query.

### Search data

### The results



### zCosBrightSpec20k\_v4\_12 Survey Spectrum



## Access



WHERE? <http://cencos.oamp.fr/hstcosmos/> <http://cencos.oamp.fr/zCosmos/>  
WHO ? COSMOS, zCOSMOS collaboration and whole community, with different rights.

## References

COSMOS Scoville et al. 2007  
zCOSMOS Lilly et al. 2007  
CeSAM Fenouillet, 2010, ADASS, poster #013