

THE PHYSICAL PROPERTIES OF GALAXIES WITH SPITZER IRS SPECTRA: UV TO INFRARED MODELLING



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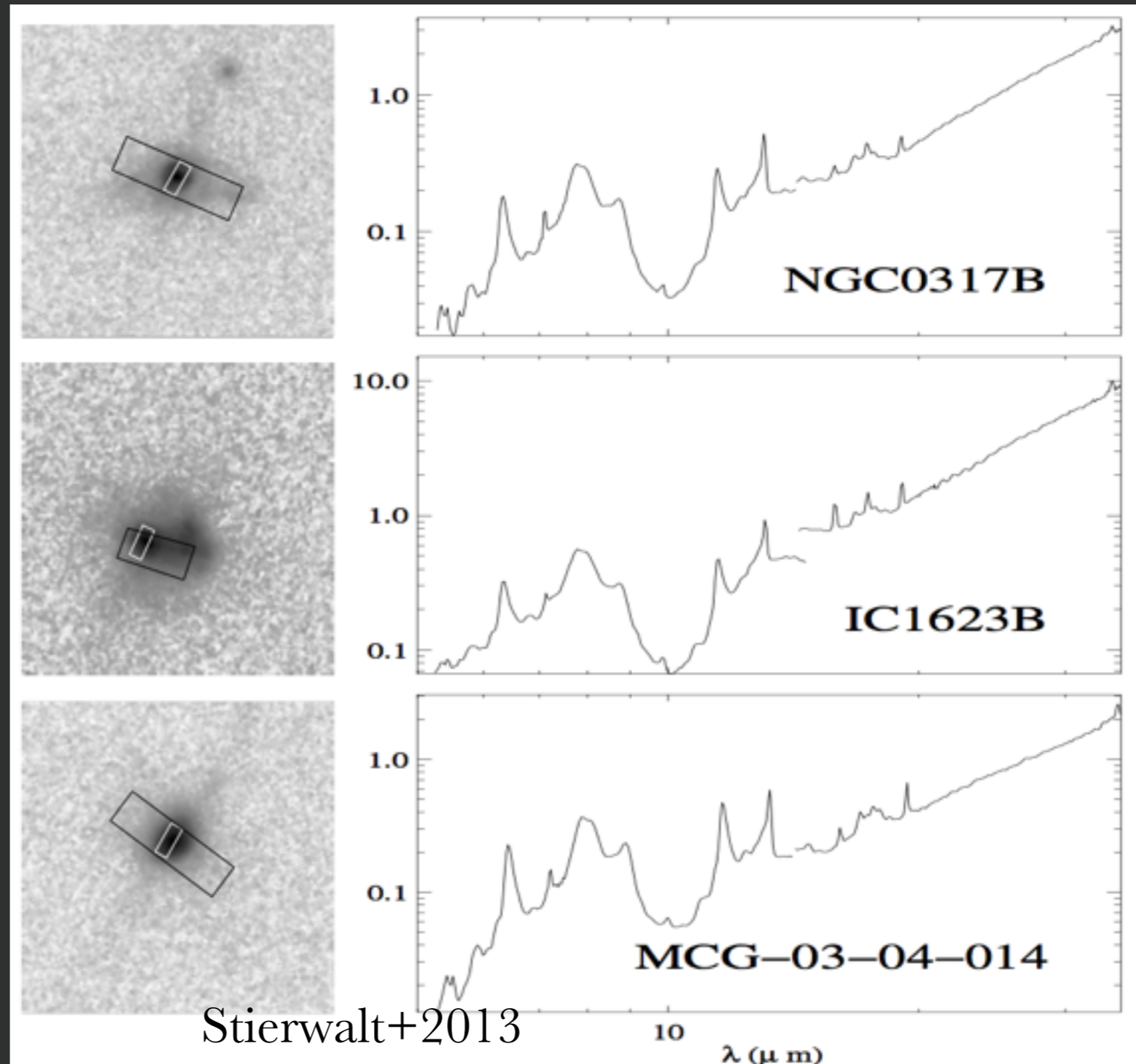


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Sample Selection

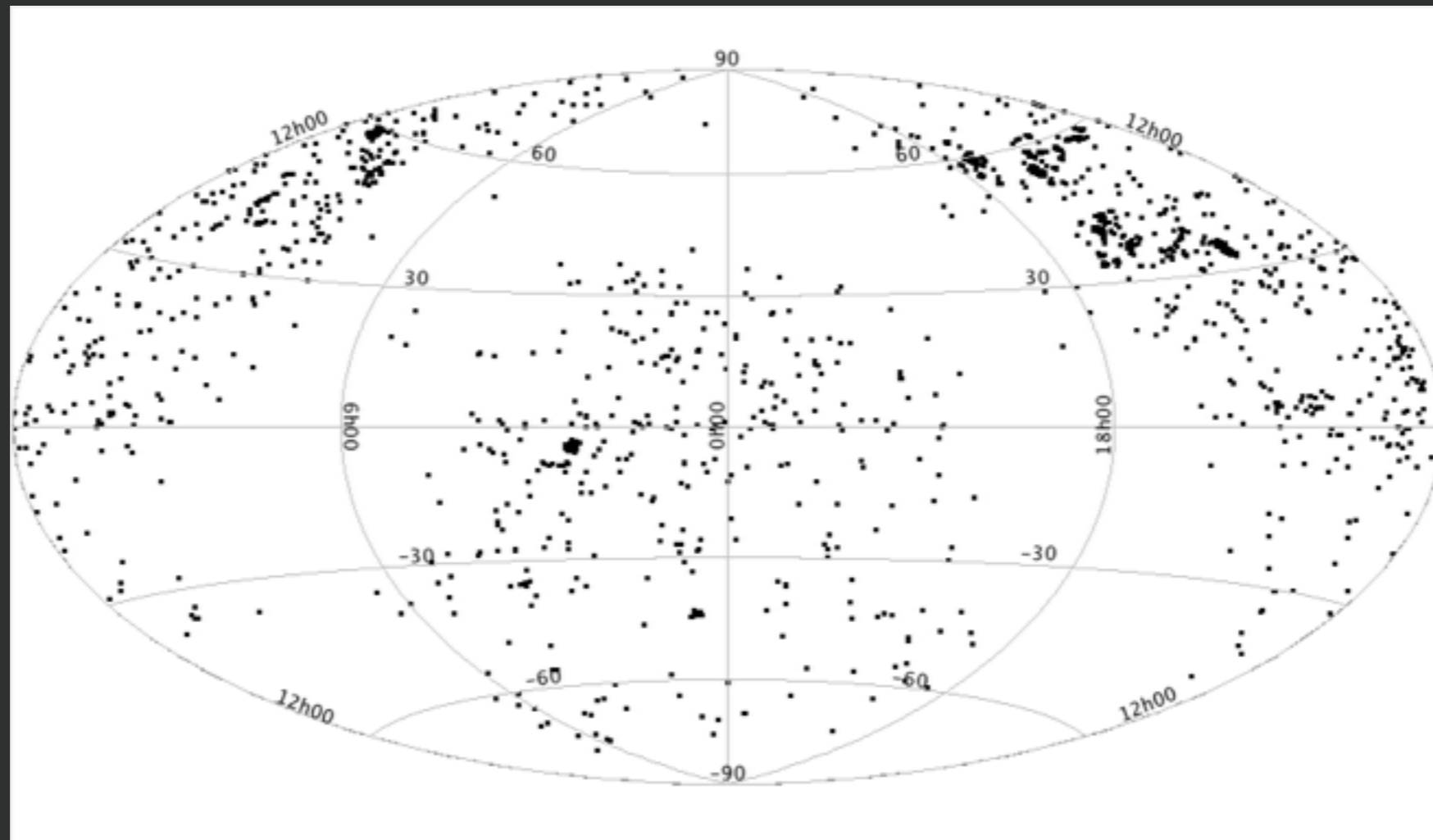
- Cassis catalogue consists of 15,000 spectra (Lebouteiller+2011, Lebouteiller+2015)



Sample Selection



- Cassis catalogue consists of 15,000 spectra (Lebouteiller+2011, Lebouteiller+2015)
- We identified 6000 extragalactic sources with good quality mid-IR spectra.



Collecting the broadband photometry



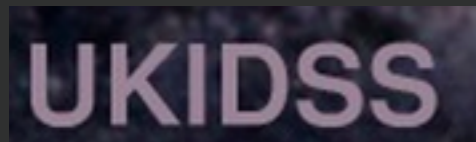
MIS: 272; AIS:1598



DR10: 3014



XSC: 1610; PSC: 2691



DR2: 563



All Sky survey: 5562
WISE-SDSS: 2516



Future Work

Final catalogue consists of 1300 galaxies. For each galaxy we have collected ~ 14 broadband photometric fluxes (FUV - $22\mu\text{m}$) & redshifts from NED.

Measuring Global Galaxy Properties with SEDs

Isochrones, Stellar Spectra libraries, IMF

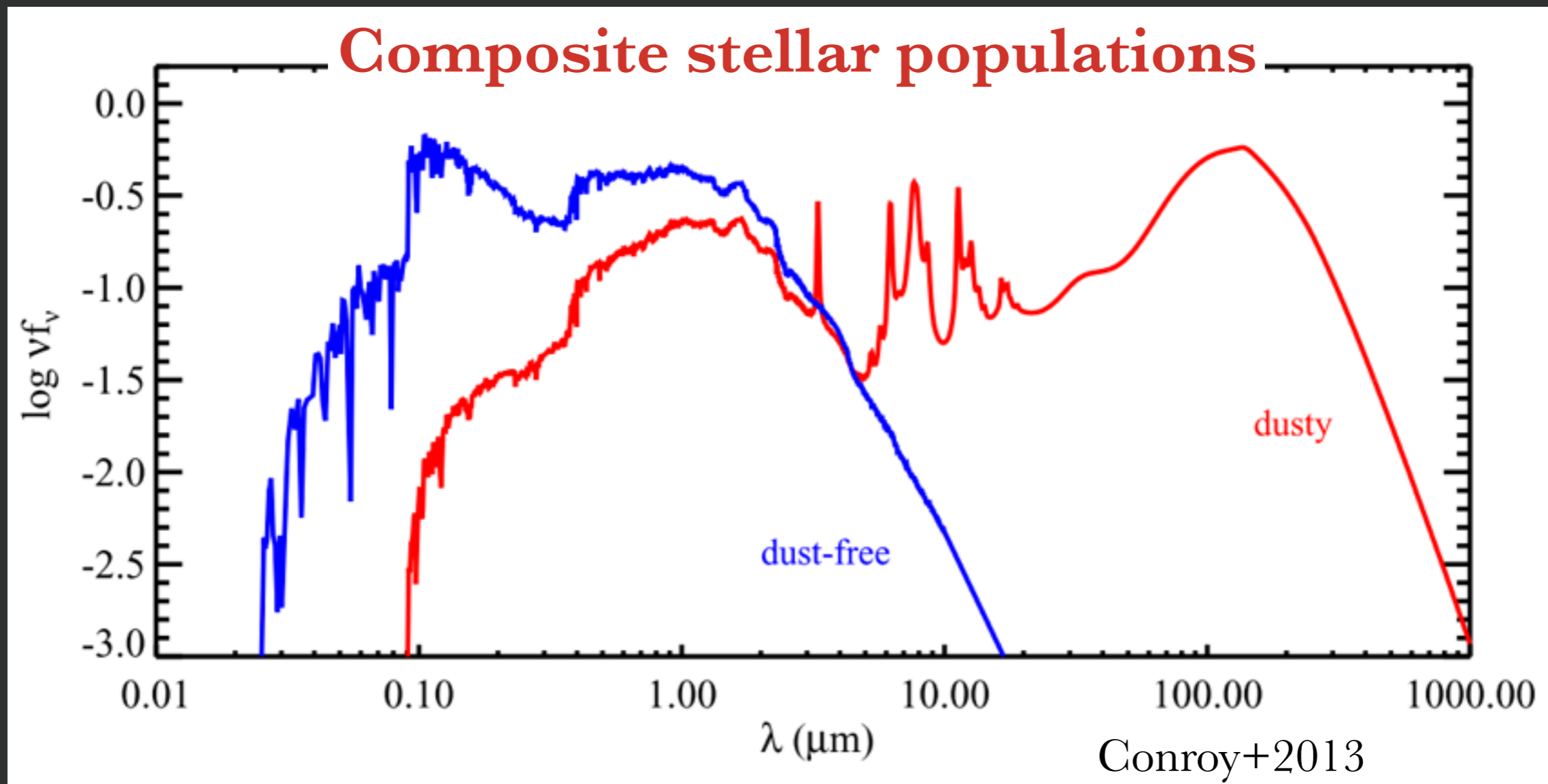
Star Formation Histories
&
Chemical Evolution

Dust attenuation & emission
models

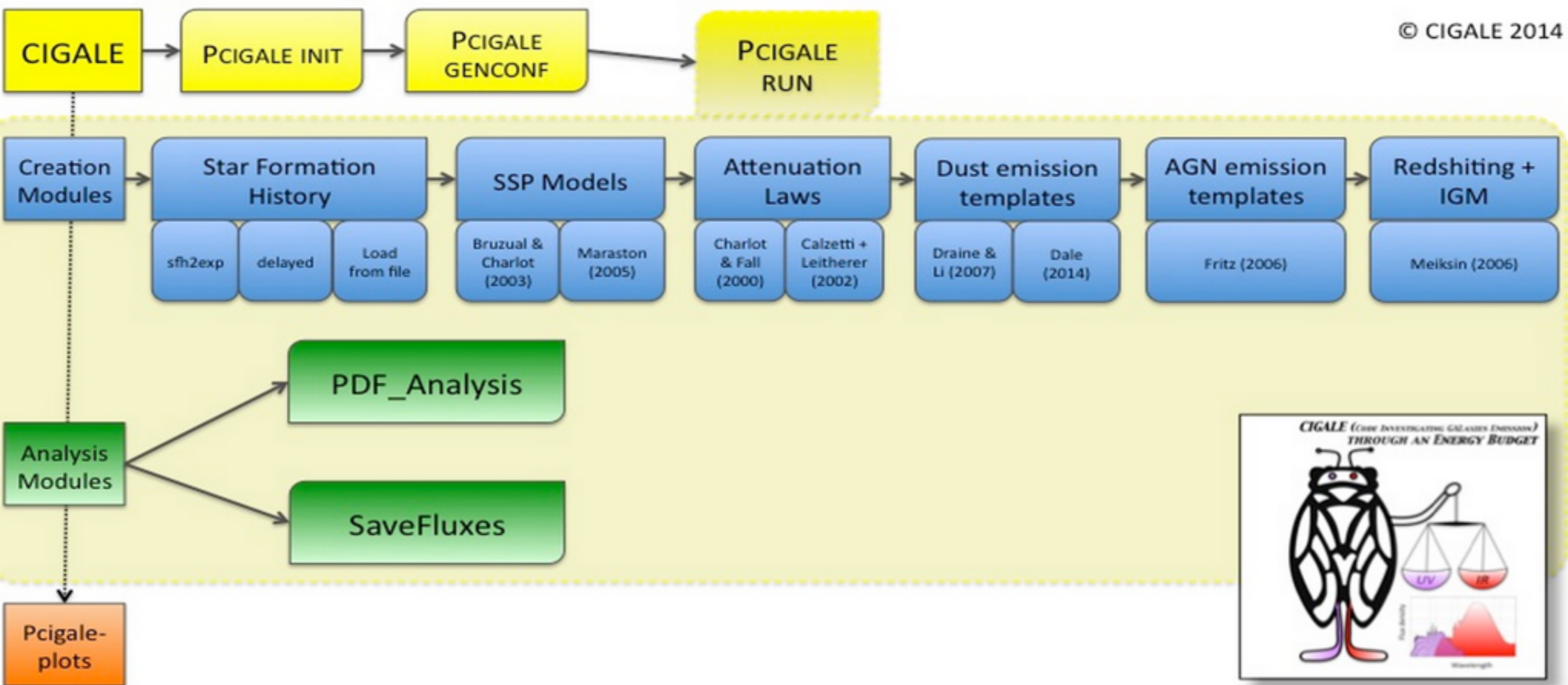
Single Stellar Populations (SSPs)

Chemical Evolution

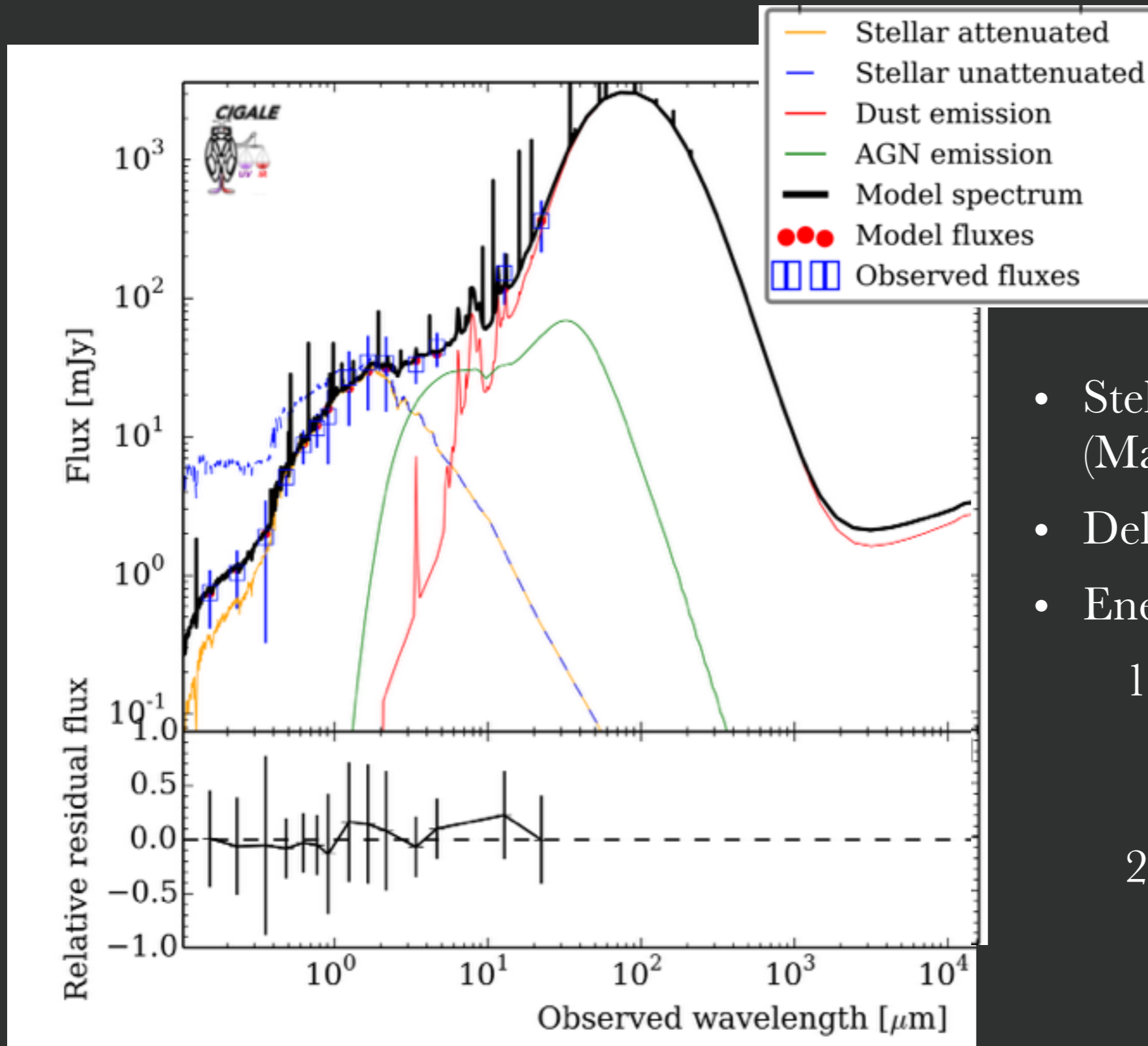
models



Code Investigating GALaxy Emission

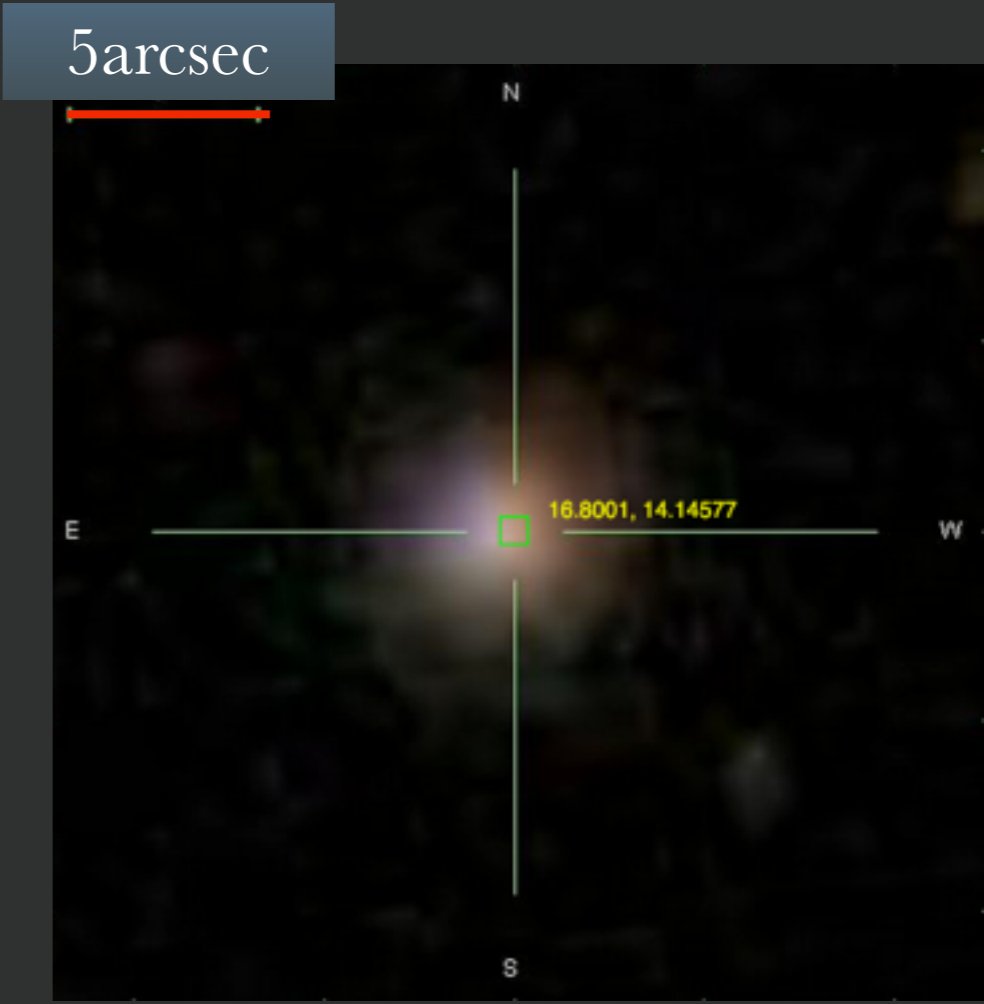
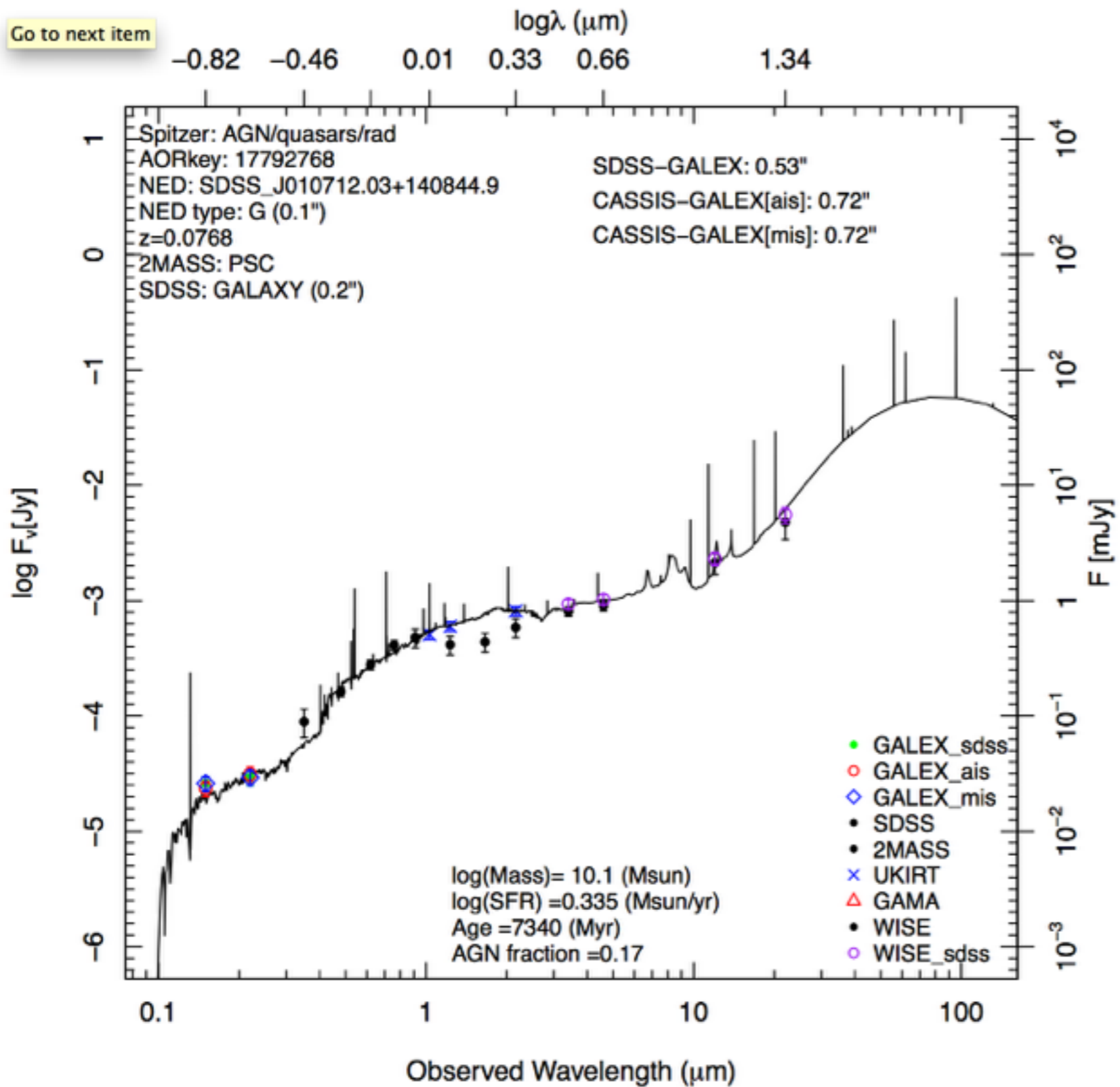


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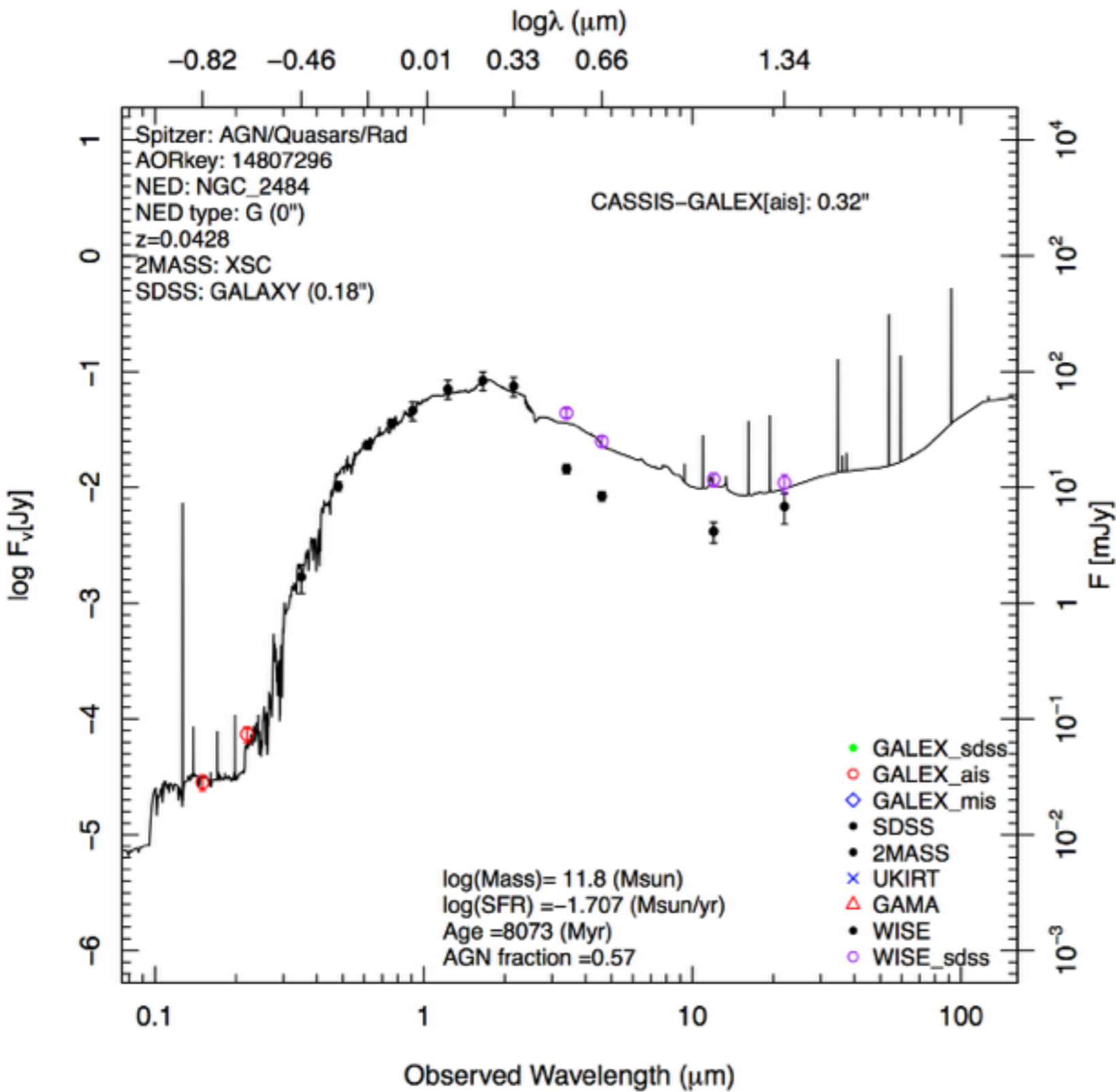


- Stellar population libraries (Maraston+2005)
- Delayed SFH (Lee+2011)
- Energy Balance
 1. dust attenuation + IR re-emission (Dale +2014)
 2. emission from AGN in the IR (Fritz+2006)

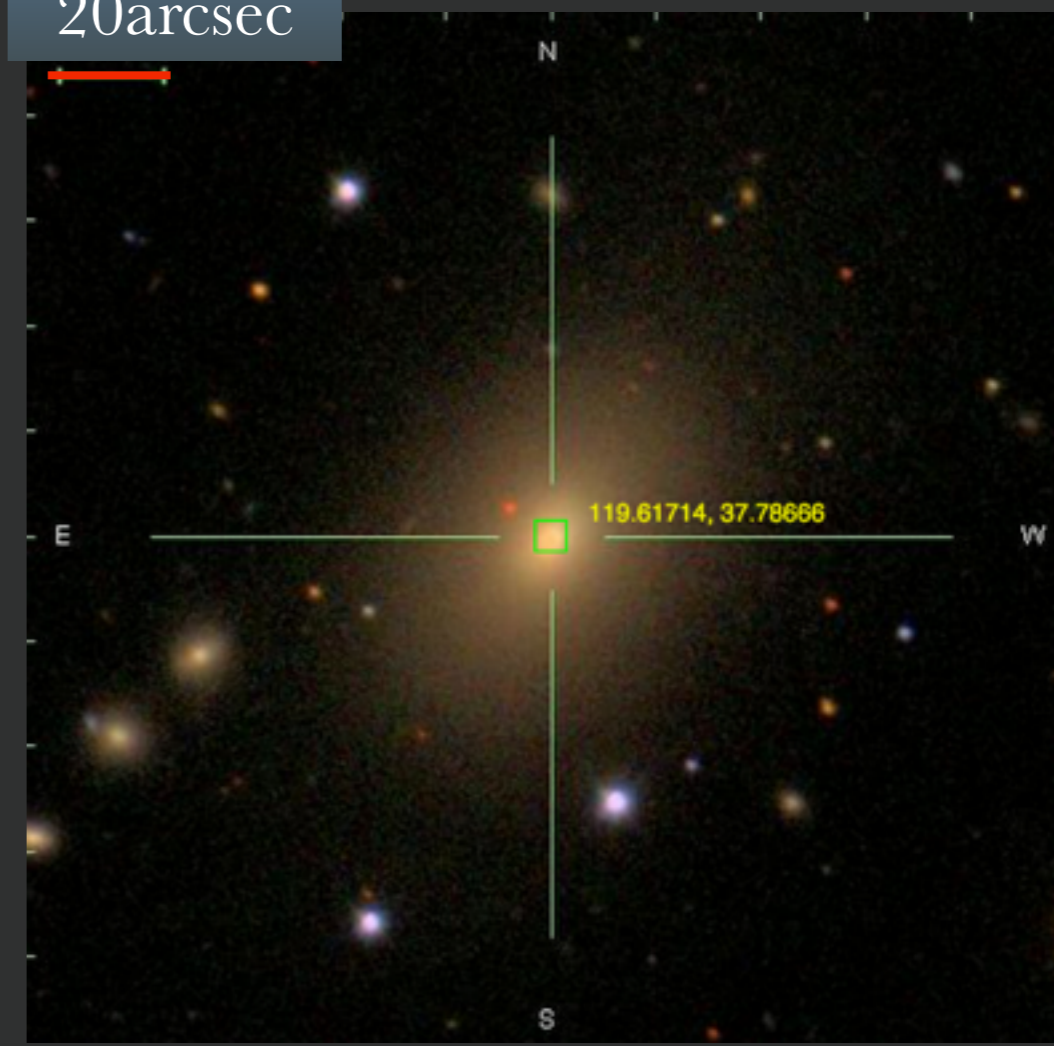
SDSS J010712.03+140844.9



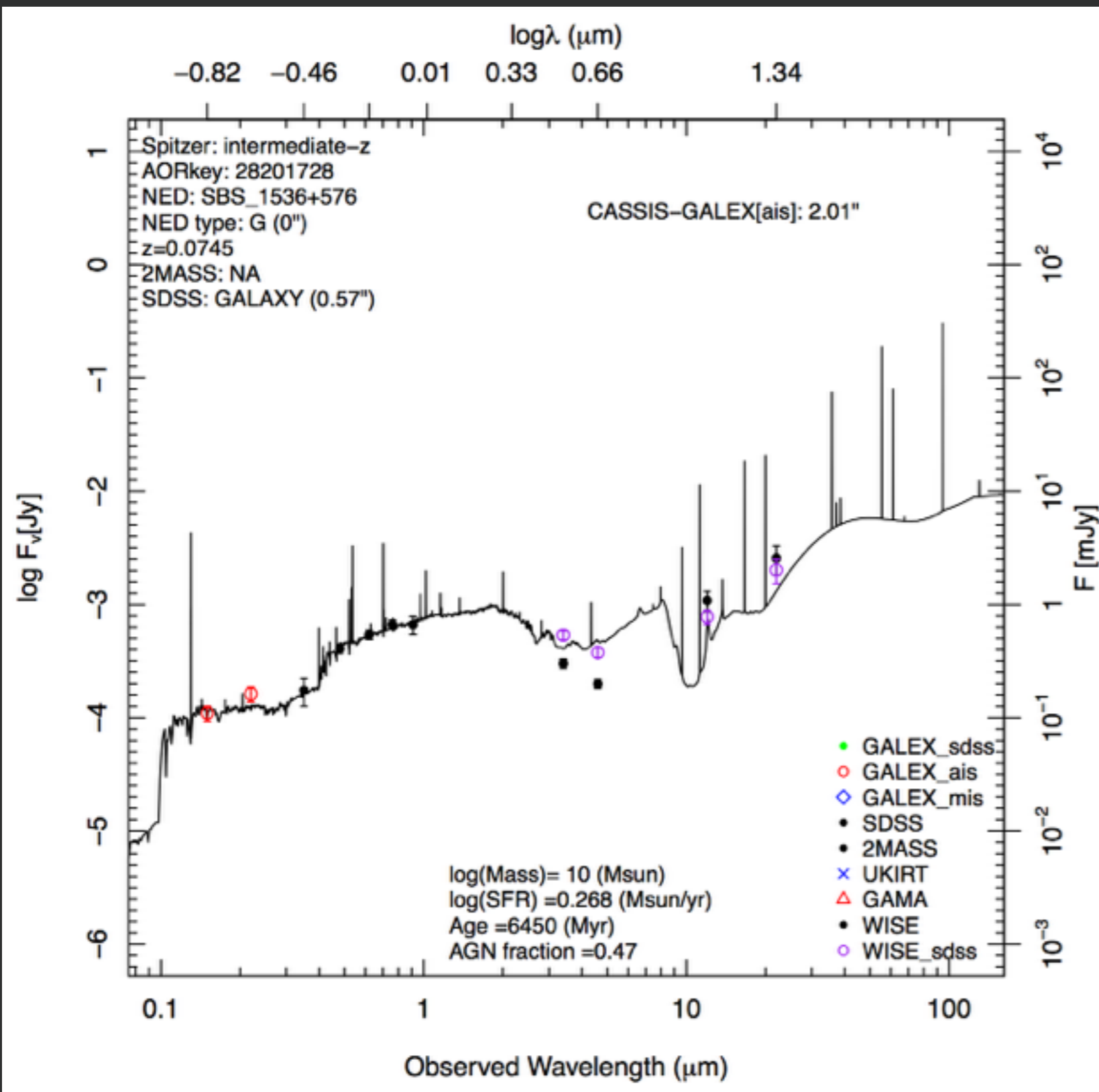
NGC 2484



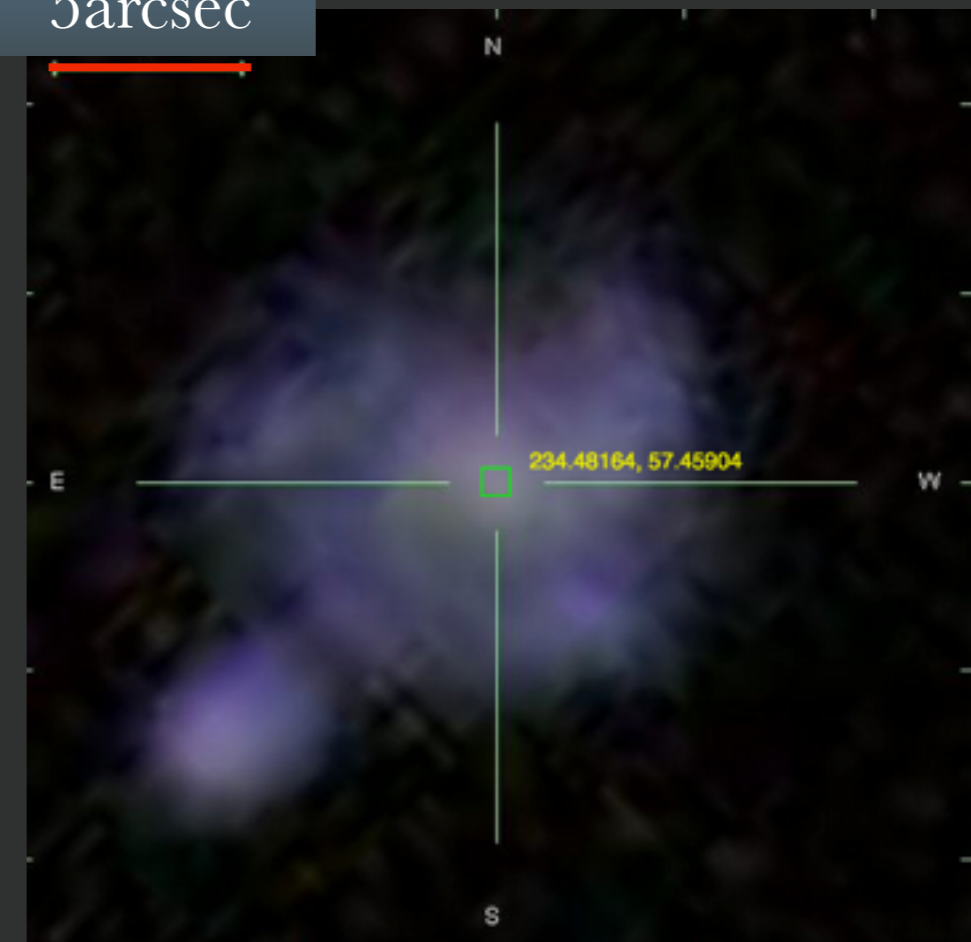
20arcsec



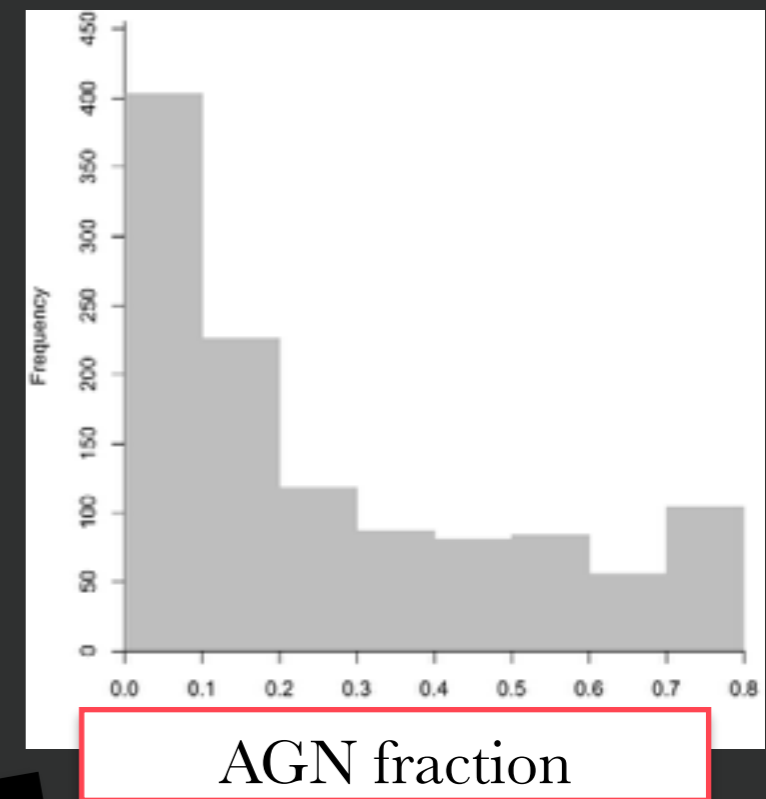
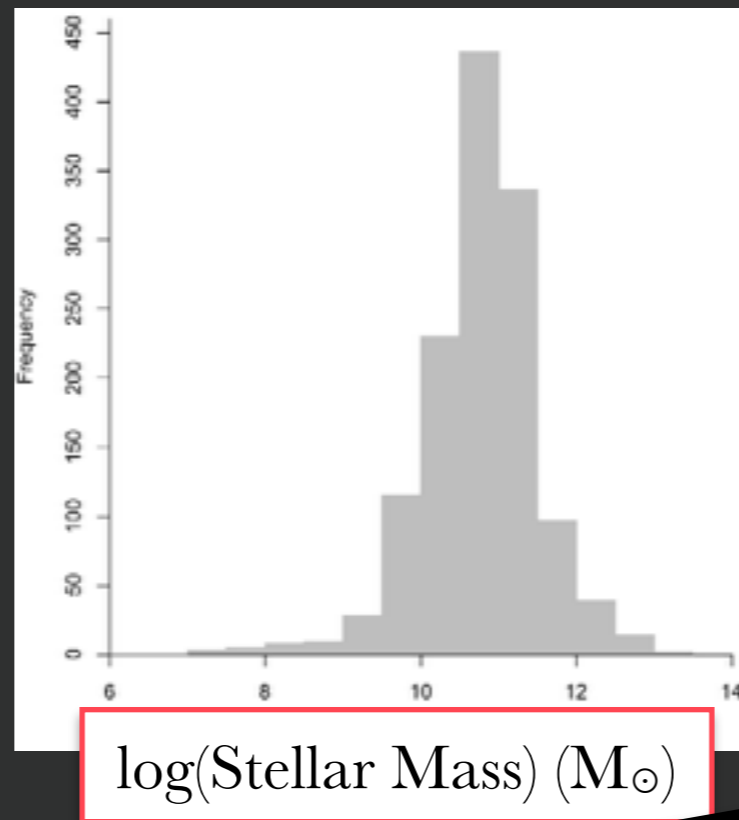
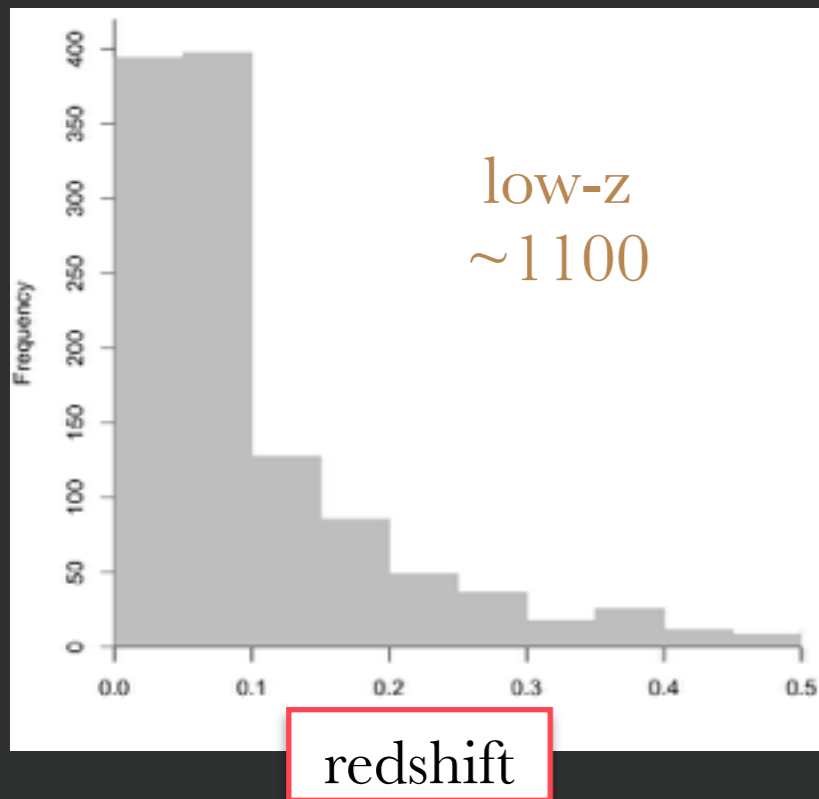
SDSS J153755.62+572732.7



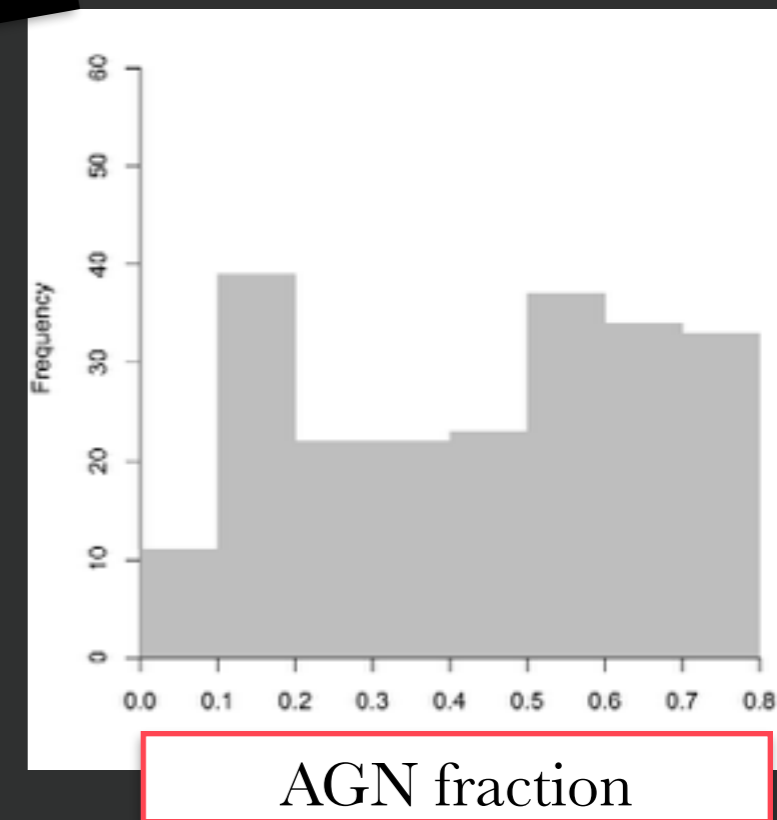
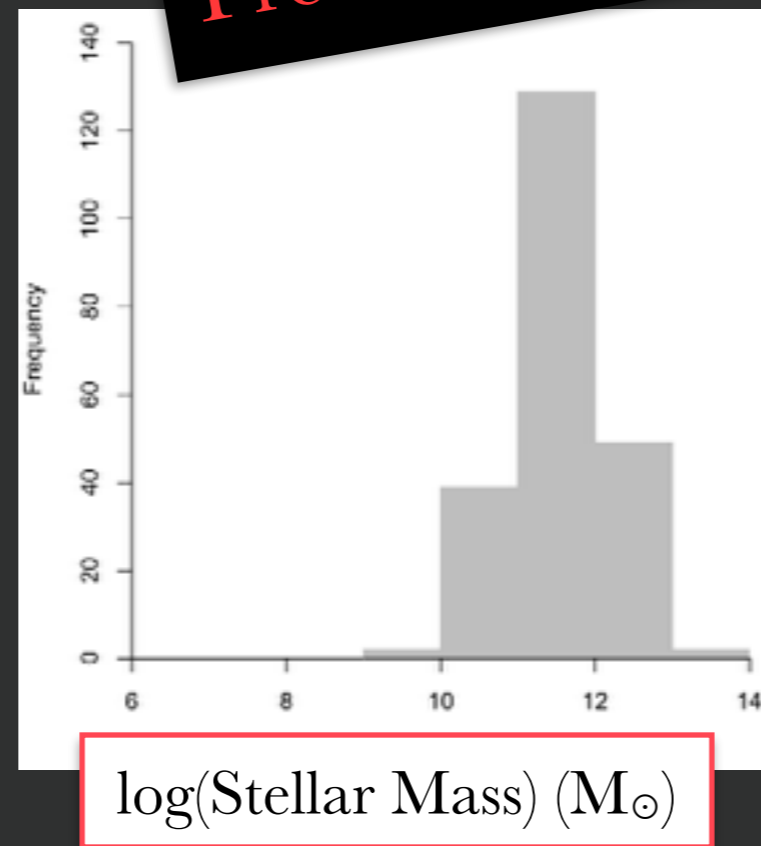
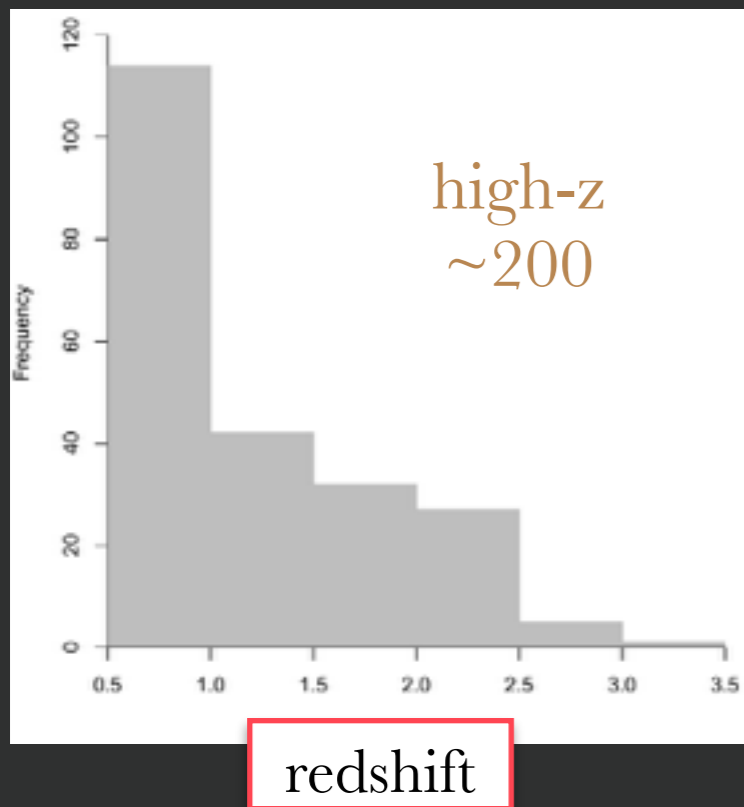
5arcsec



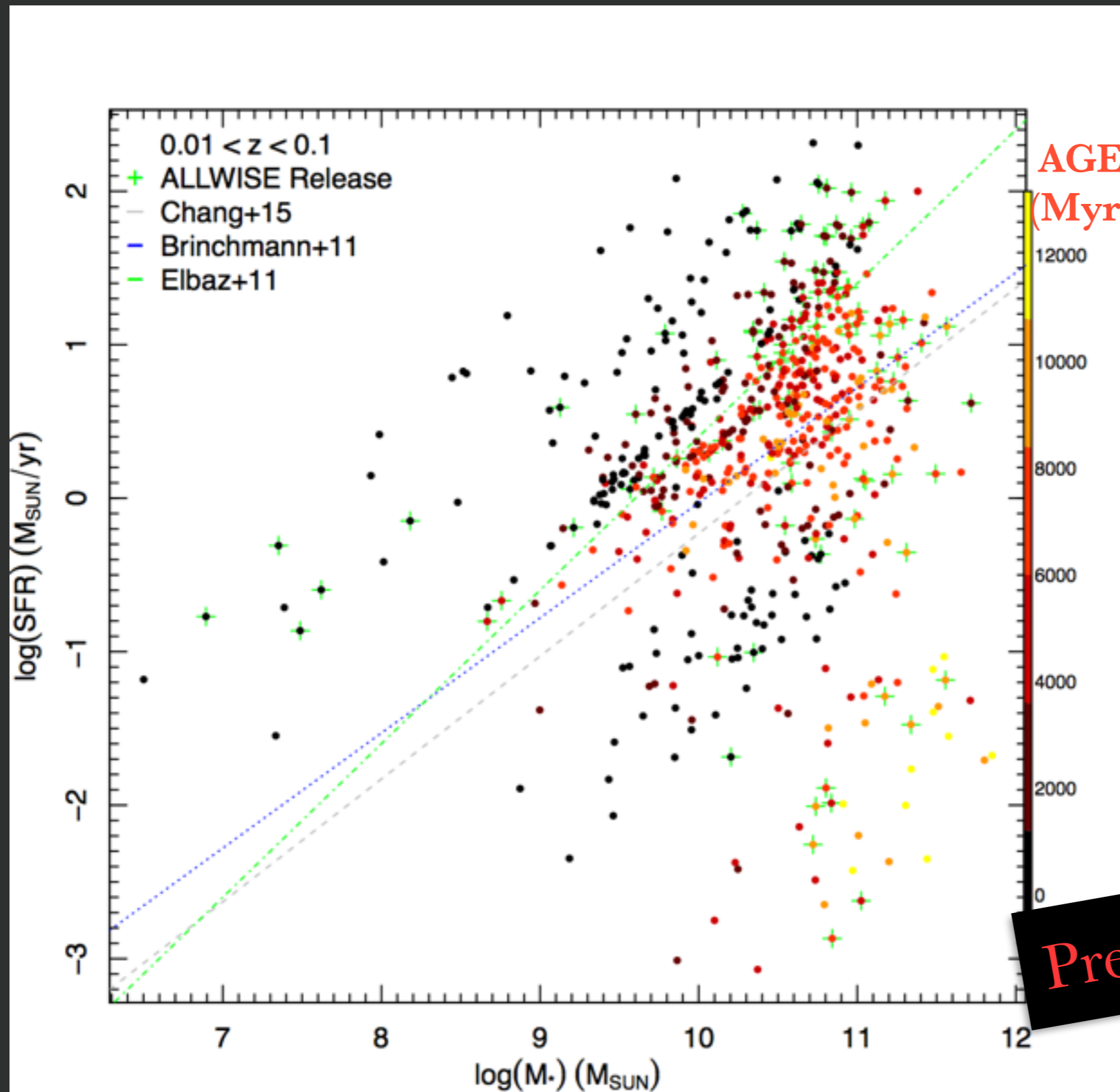
What can be measured?



Preliminary Results



What are the properties of our sample?

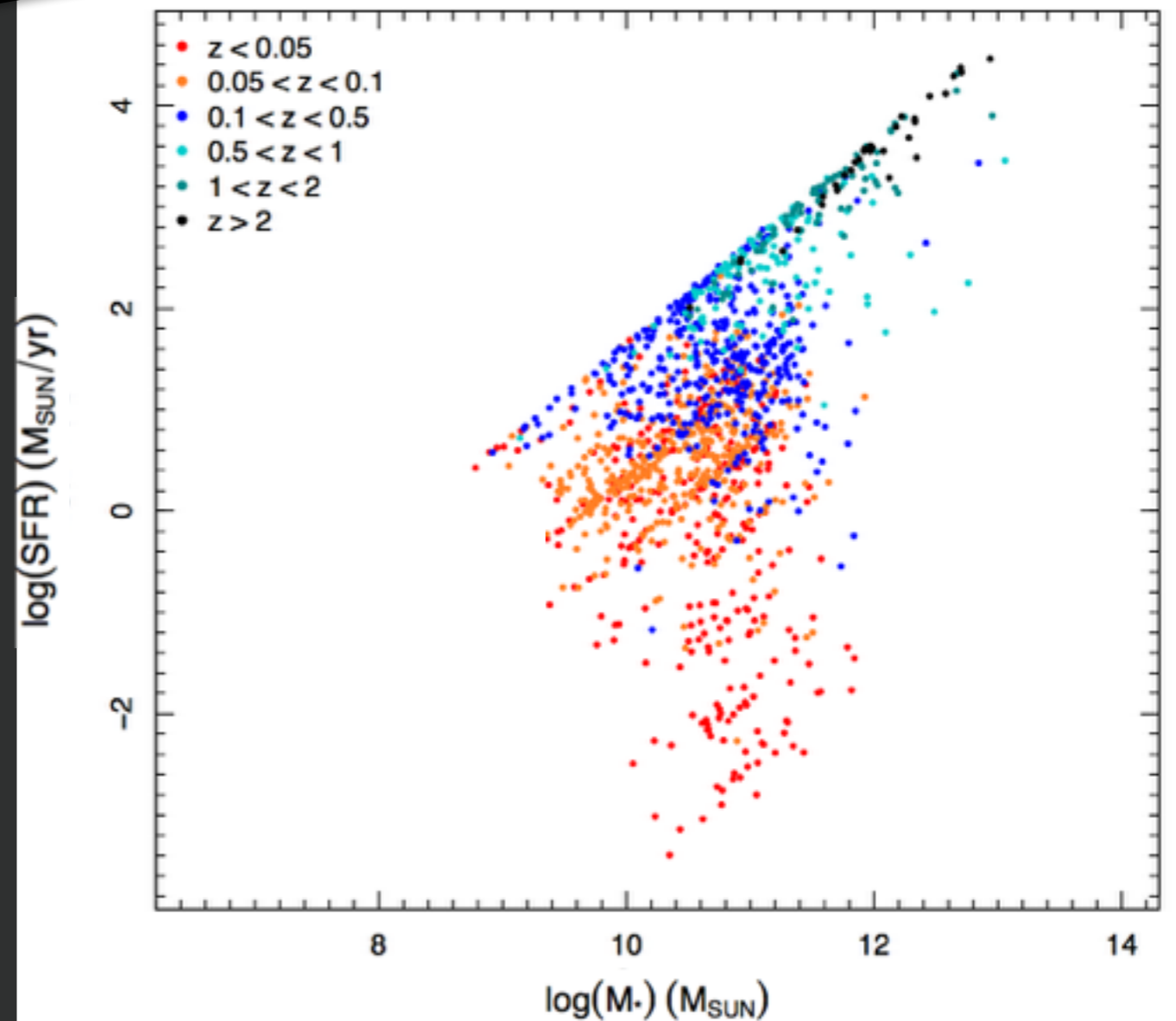
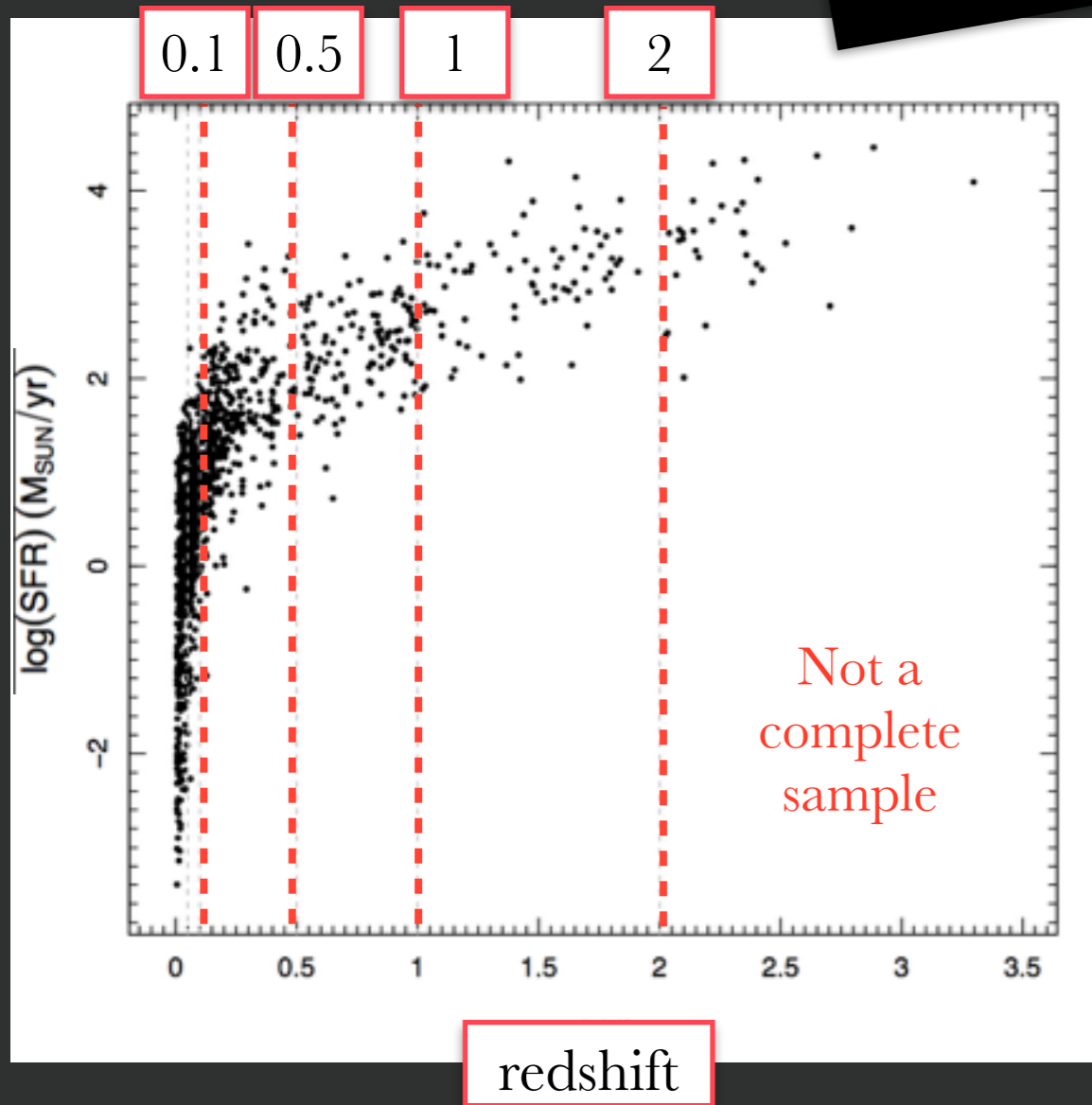


640 galaxies
 $0.01 < z < 0.1$

Preliminary Results

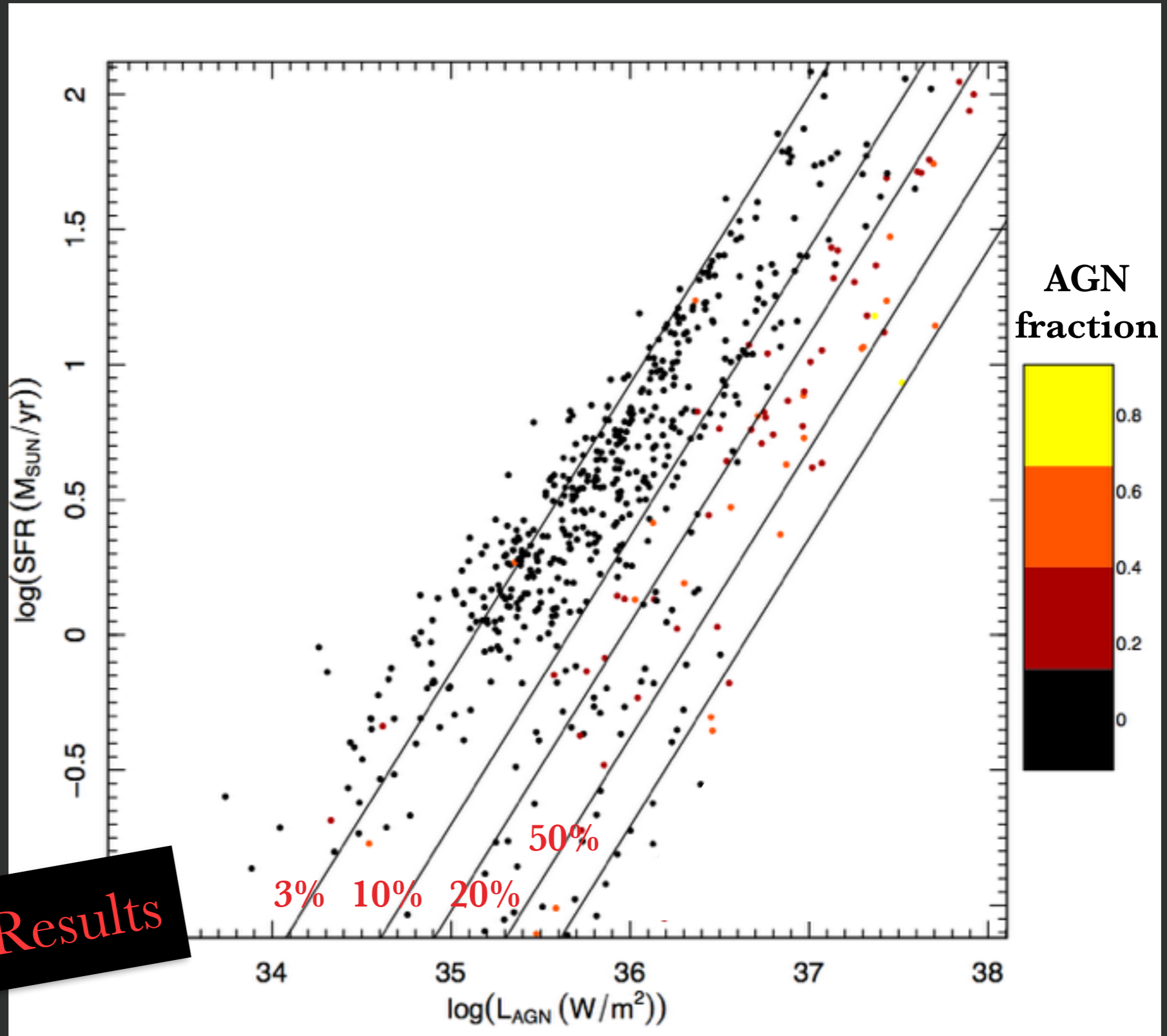
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Preliminary Results



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Preliminary Results

Summary

- We have collected a sample of 1300 galaxies with broadband photometric fluxes (FUV - 22 μ m) & redshift measurements.
- We are planning to expand the photometric measurements in the Far-IR by adding Herschel data.
- **All the galaxies have mid-IR nuclear spectra from Spitzer - IRS.**
- We have applied CIGALE in order to model the spectral energy distribution and derive global properties (M_* , SFR, L_{dust} , AGN fraction). We aim to produce a legacy value database as a reference for future work.
- **Future Work:** investigate the connection between the nuclear emission (AGN properties) and the global properties.