SEDs of Type 1 AGNs in COSMOS -- Evolution

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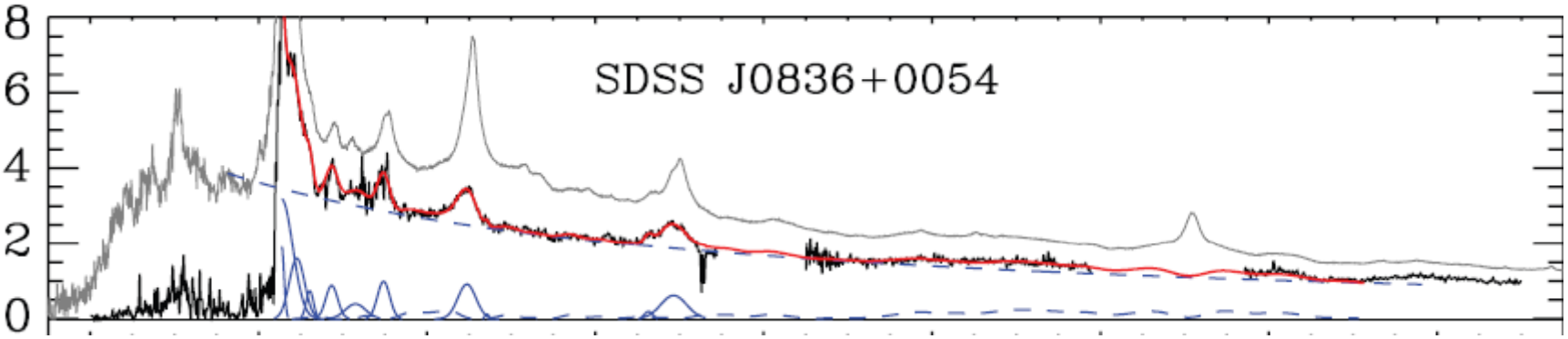
Quasar SED Evolution



Jiang et al., 2007, AJ, 134, 1150 **NO EVOLUTION?**

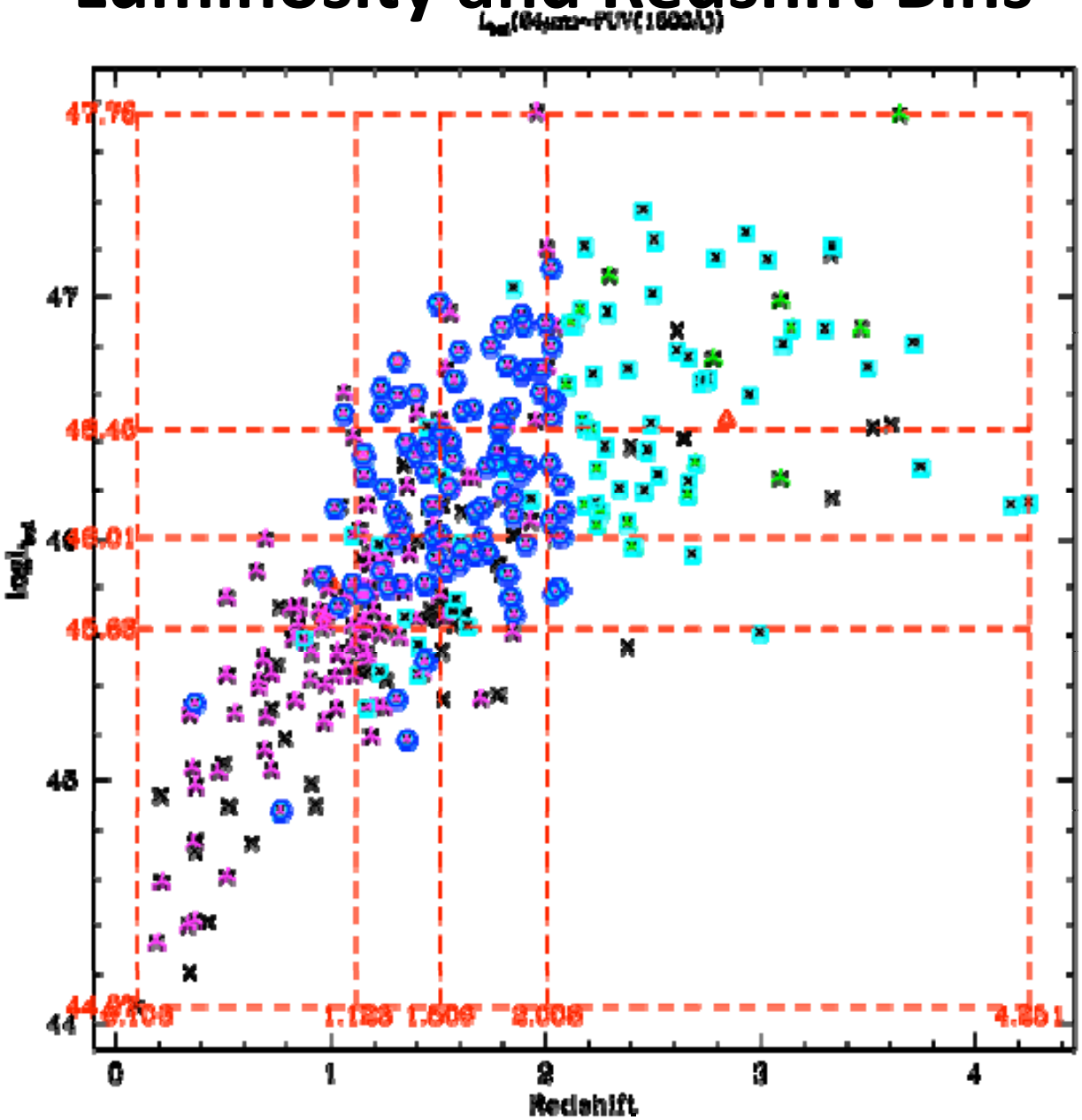
- No convincing evidence for SED evolution with redshift (Silverman et al. 2002, Mathur et al. 2002, Brandt et al. 2002, Vignali et al. 2002, Jiang et al. 2007)
- Possible SED evolution with luminosity (Ho et al. 1999)

COSMOS Type 1 AGN Sample

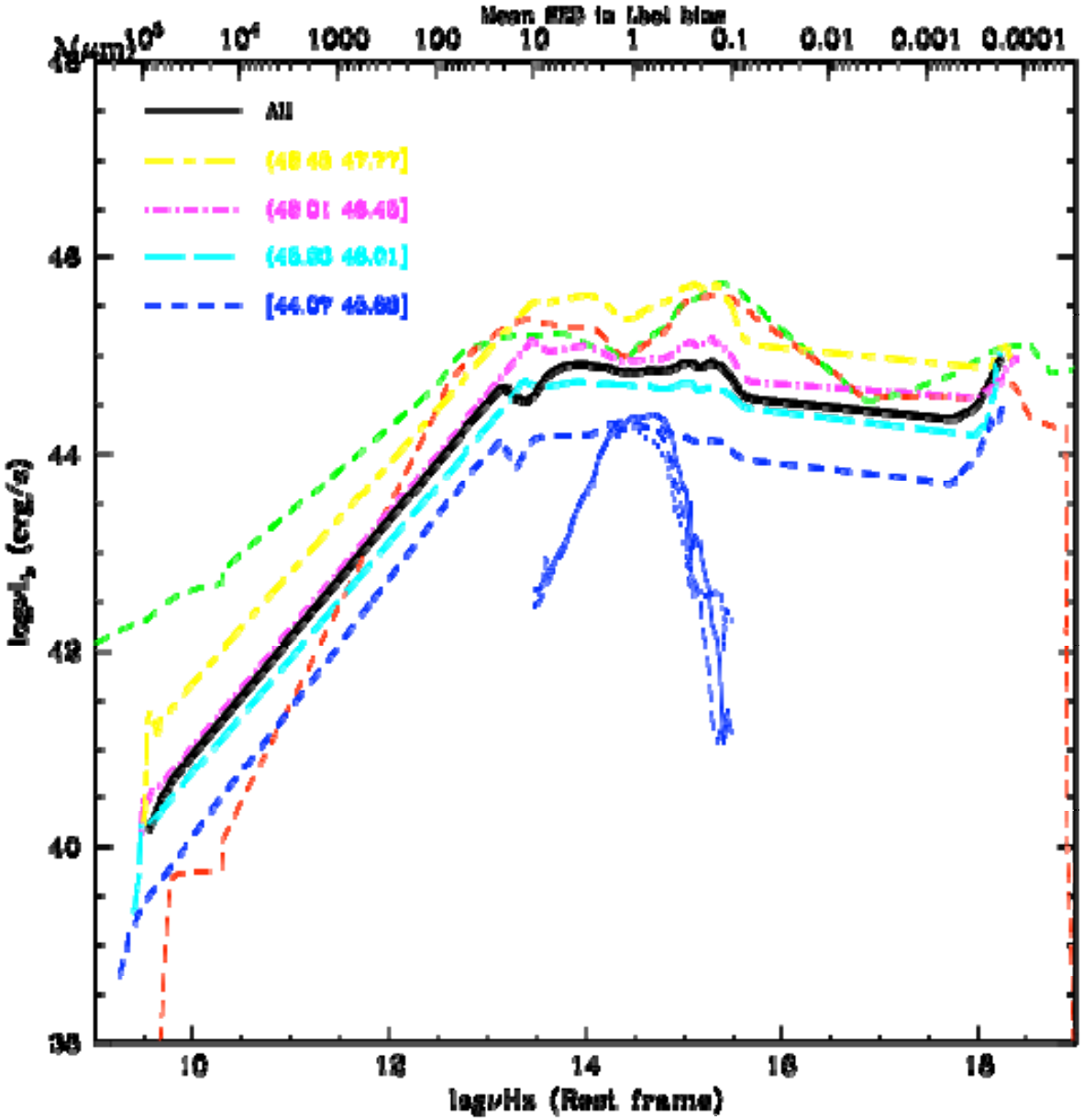
- 324 type 1 AGNs XMM selection
- Magellan, SDSS, MMT, VLT optical spectra
- z range: 0.1-4.3, most sources at 1-2
- i_{AB} range: 16.9~23.5

Good to study possible SED evolution

Luminosity and Redshift Bins



Mean SED in Luminosity Bins



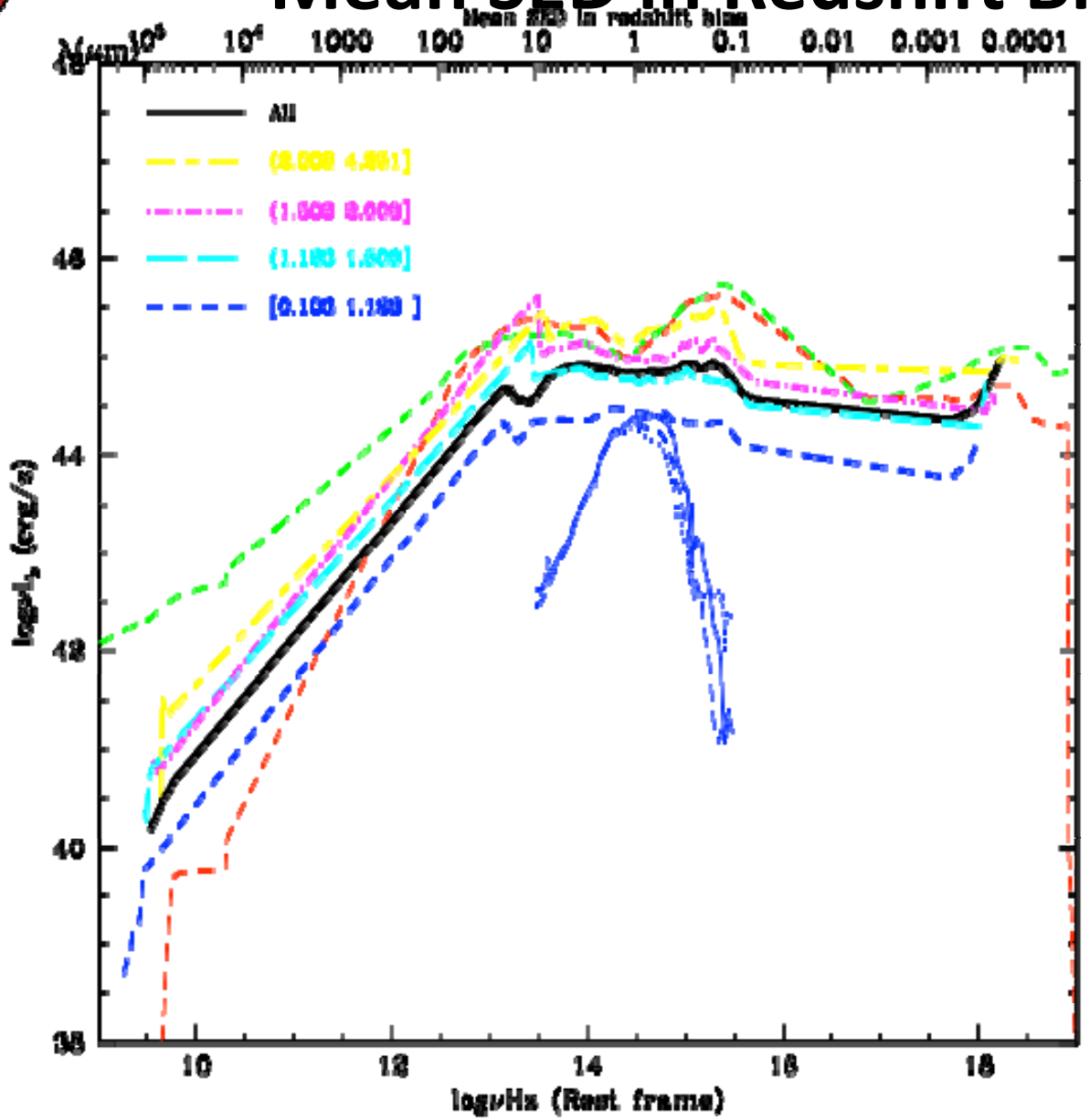
46.5 <lg(L)<47.8

46.0 <lg(L)<46.5

45.6 <lg(L)<46.0

44.0 <lg(L)<45.6

Mean SED in Redshift Bins



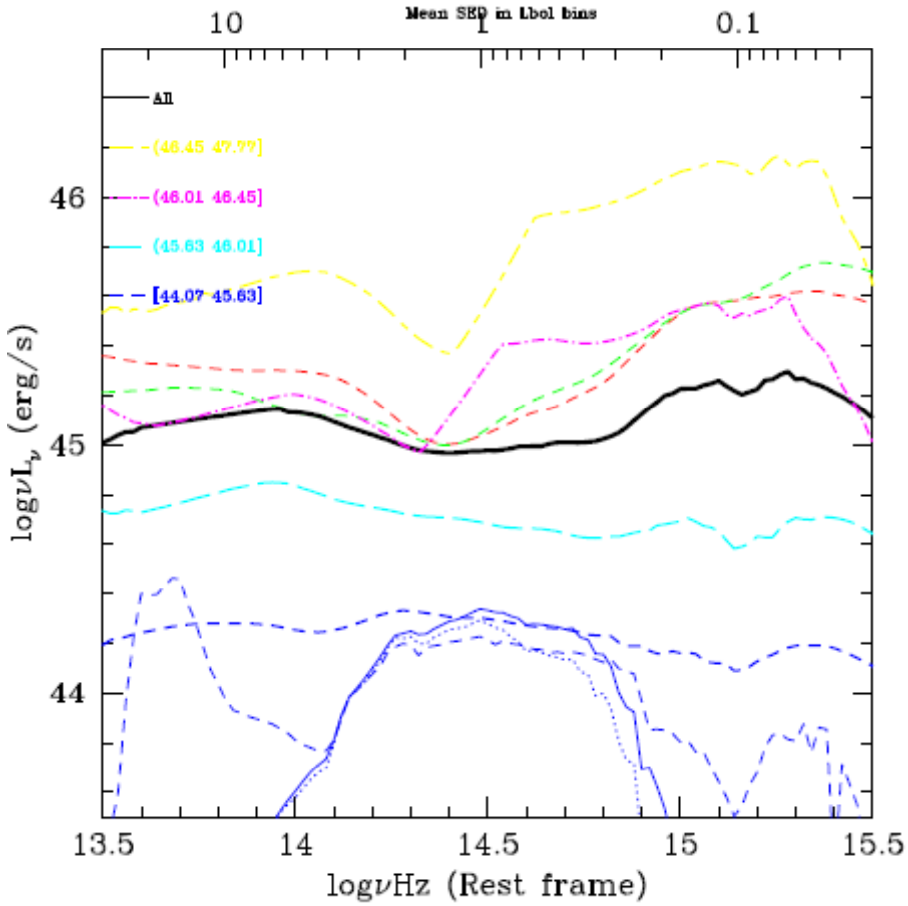
2.01 <z<4.25

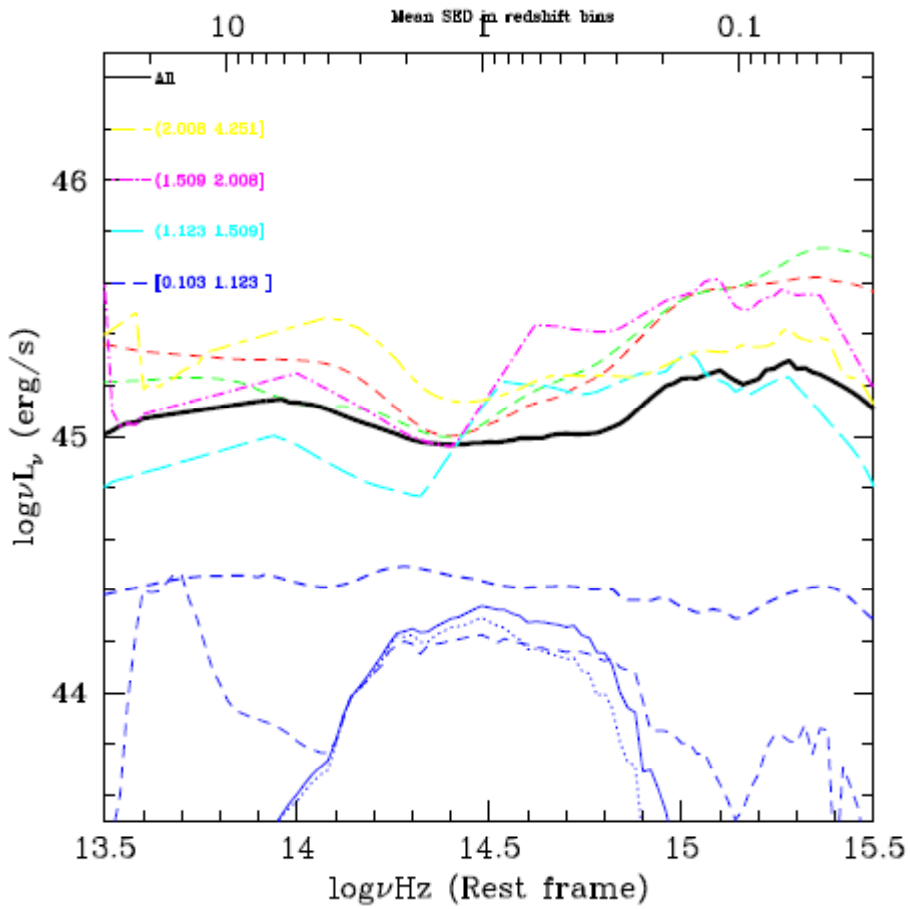
1.51 <z<2.01

1.12 <z<1.51

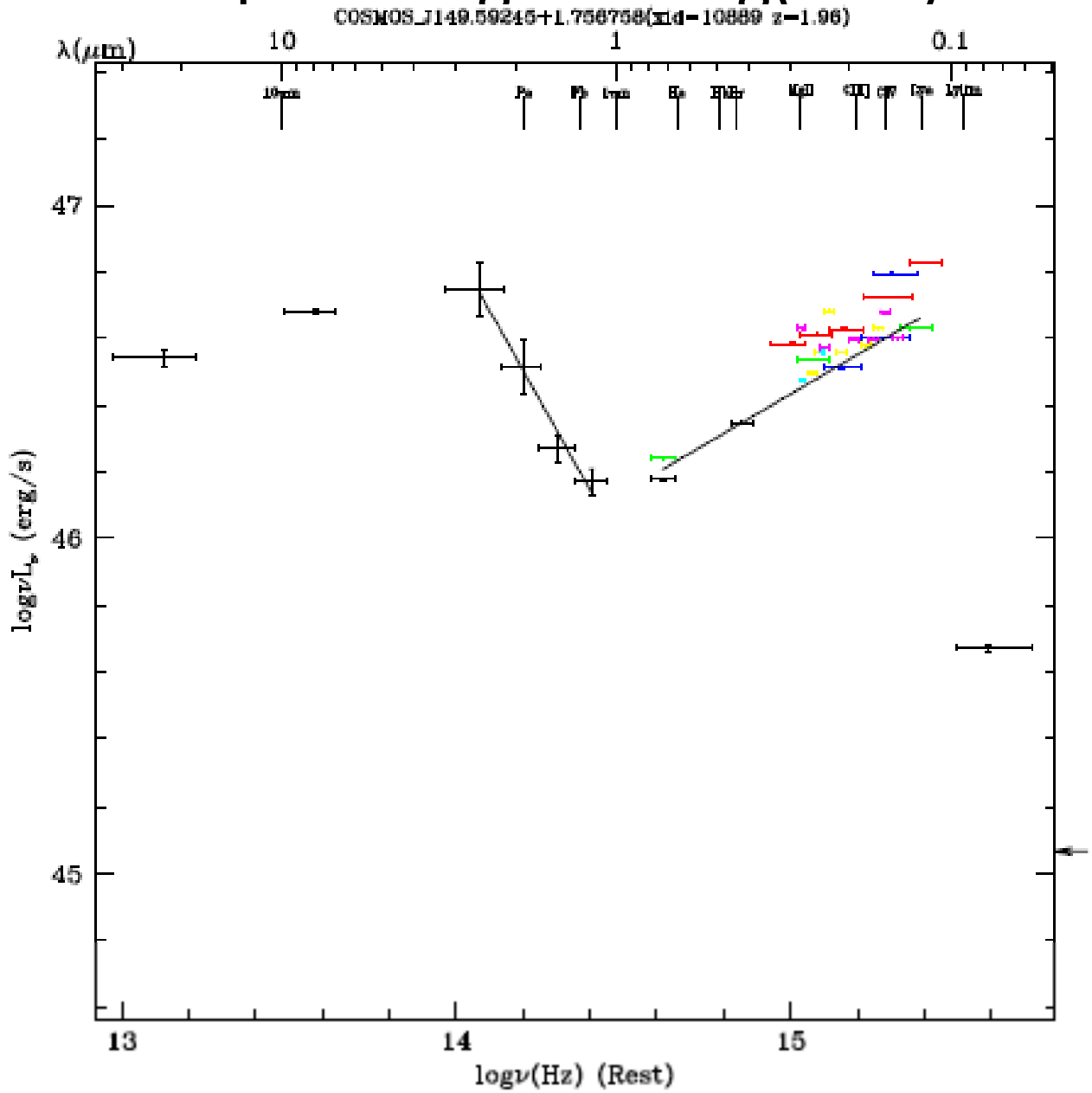
0.10 <z<1.12

PG & Point-like Sources

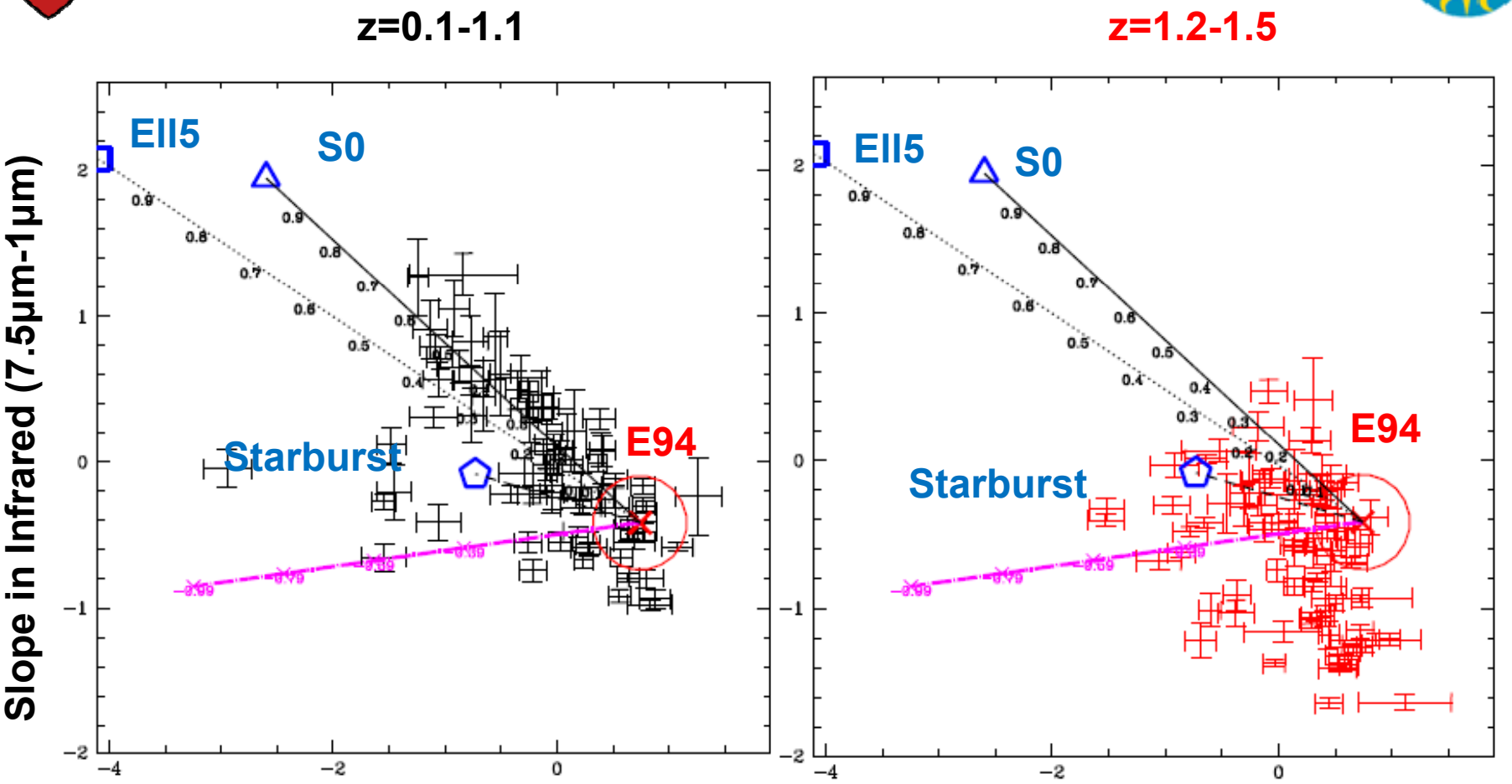




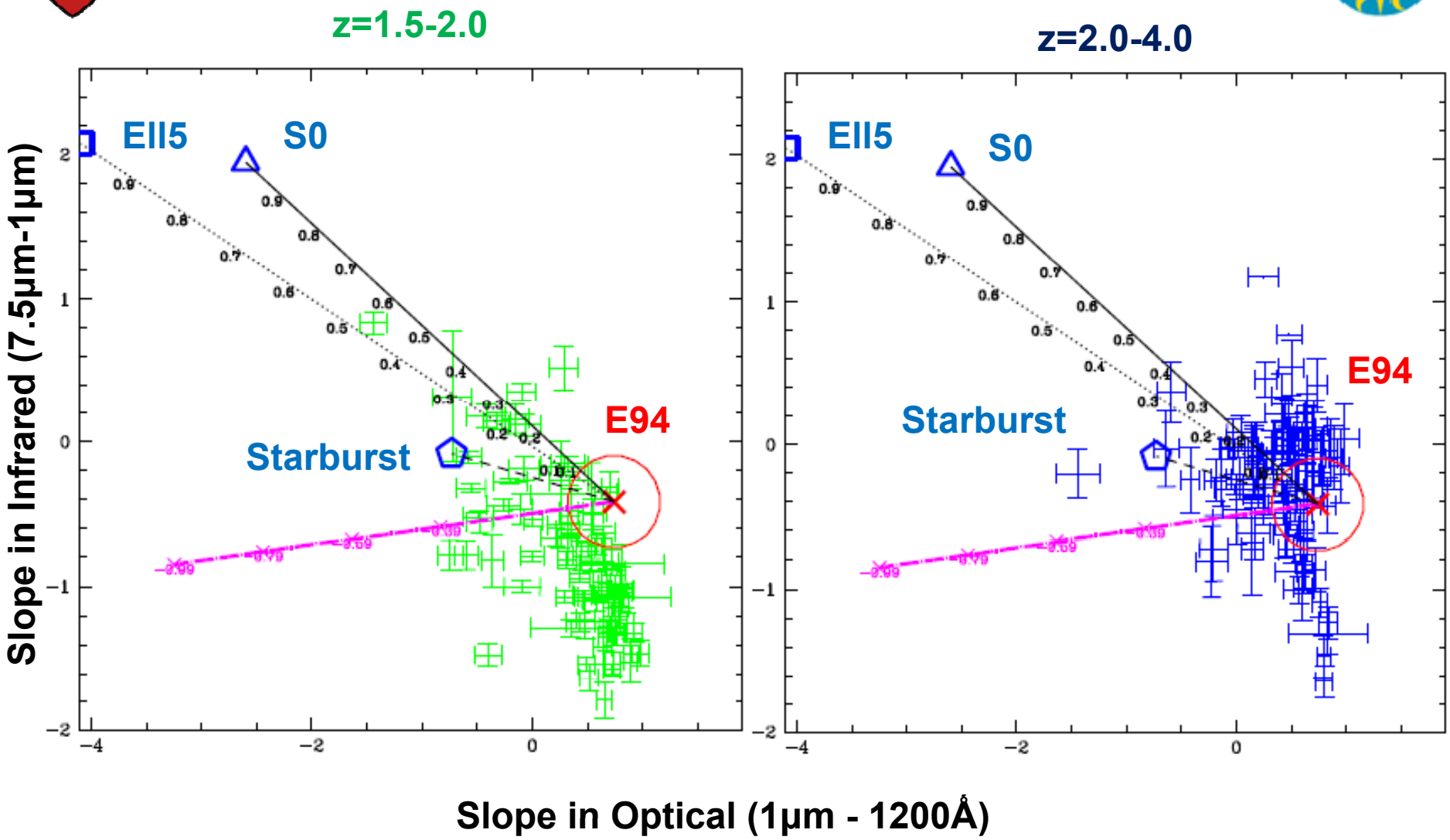
SED Example—Brightest log(Lbol)=47.8



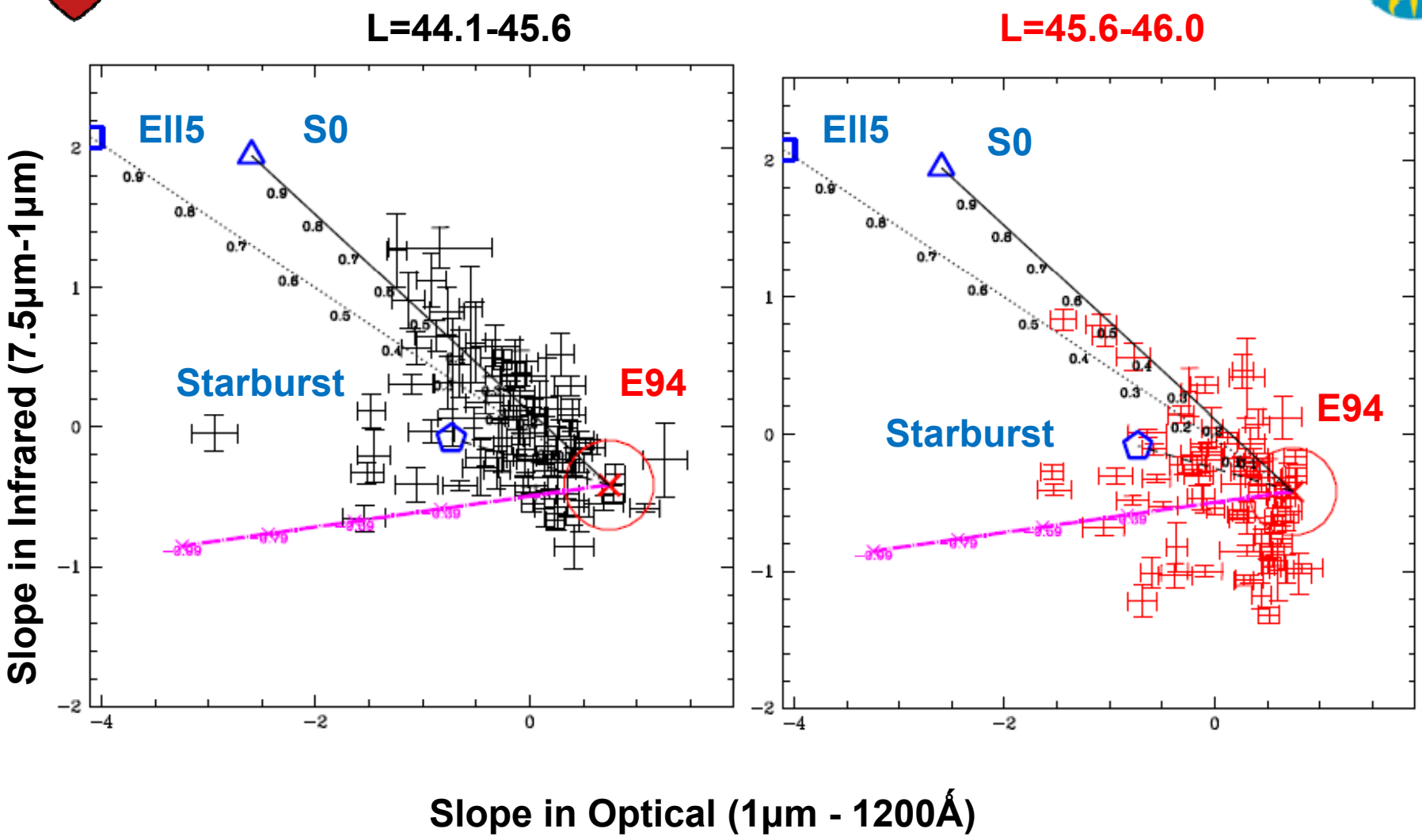
Slope Plot (redshift bin 1 & 2)



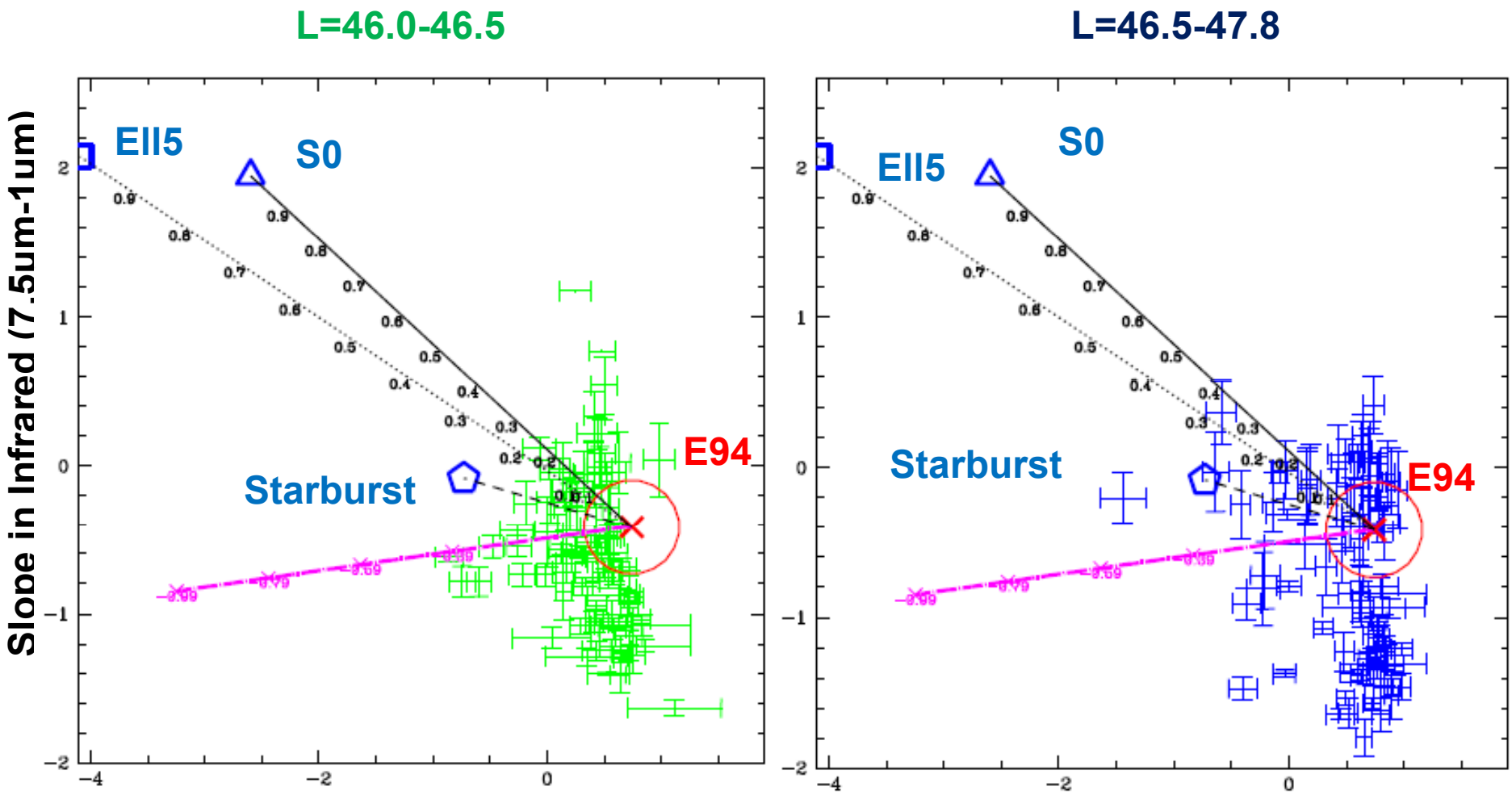
Slope Plot (redshift bin 3 & 4)



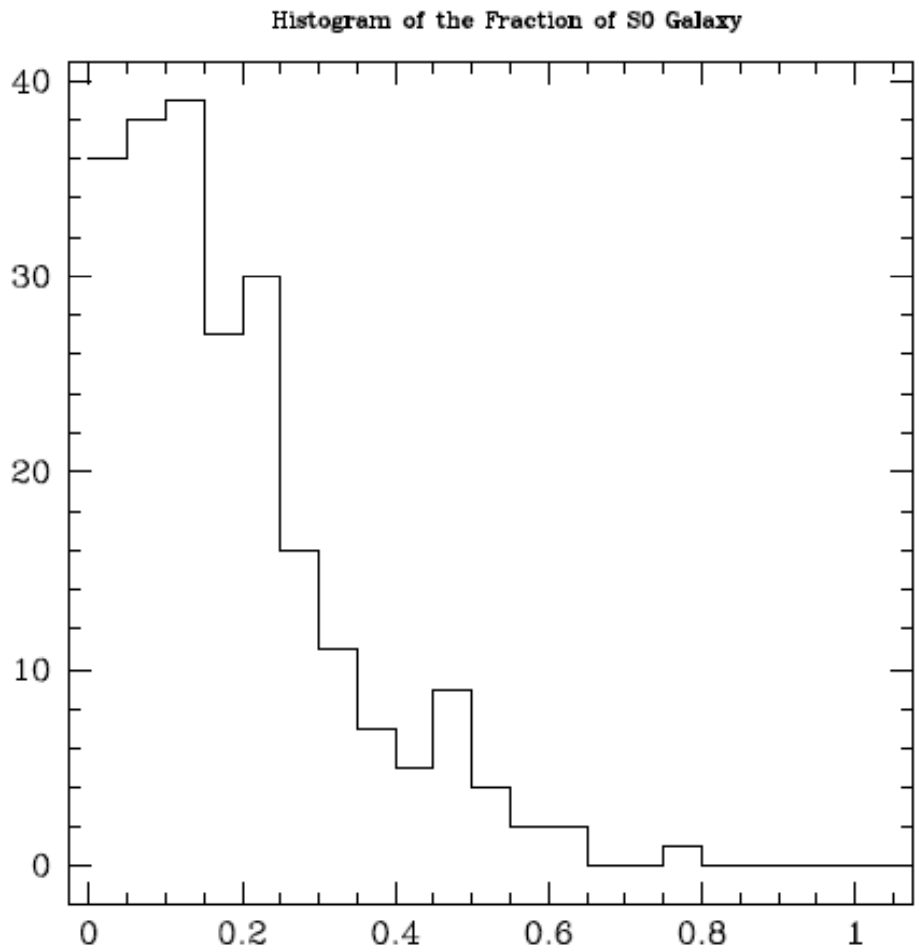
Slope Plot (luminosity bin 1 & 2)

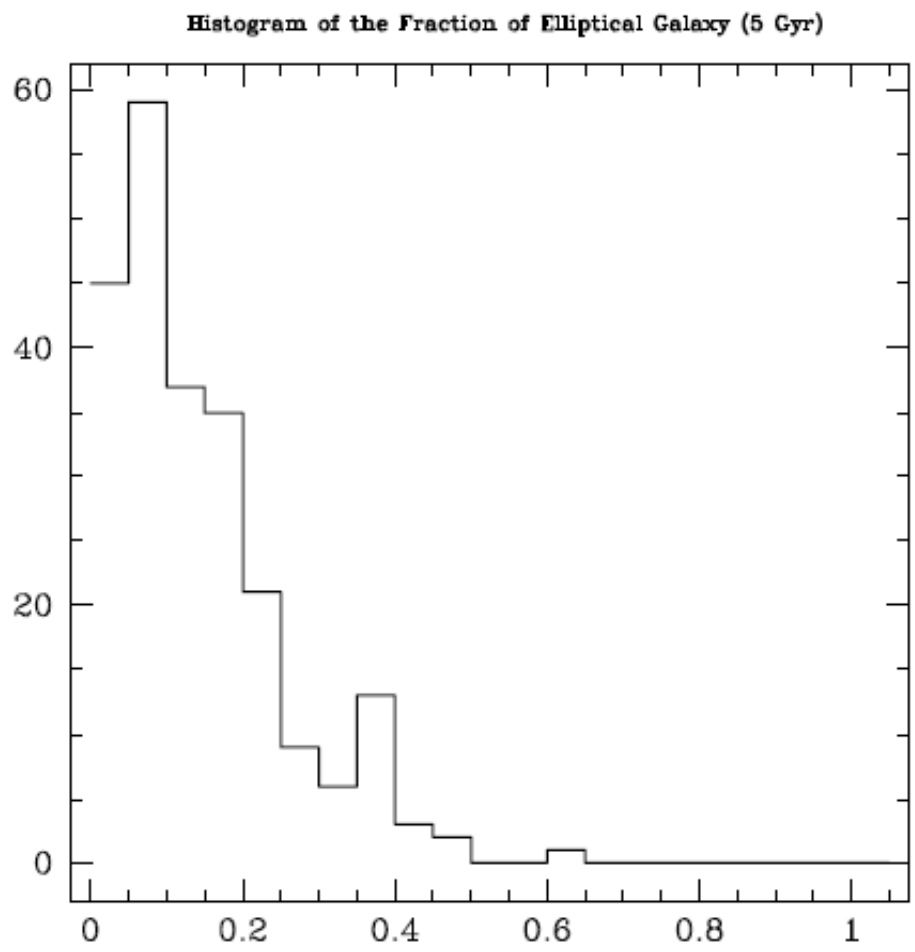


Slope Plot (luminosity bin 3 & 4)

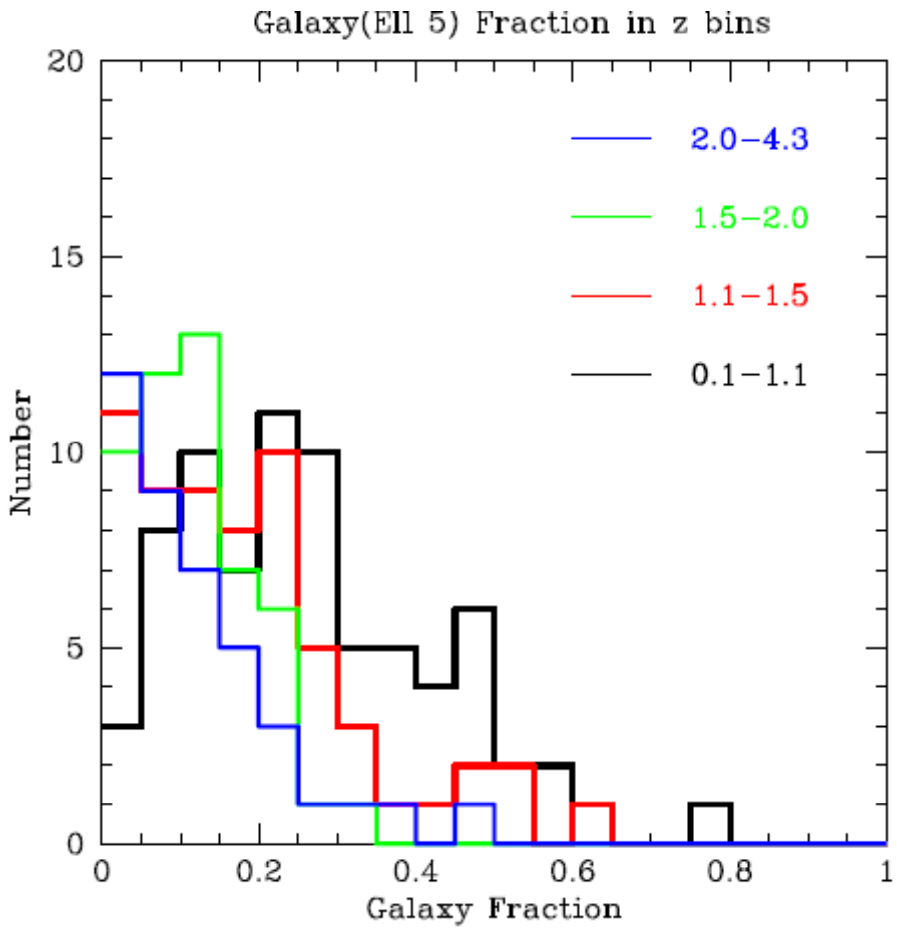


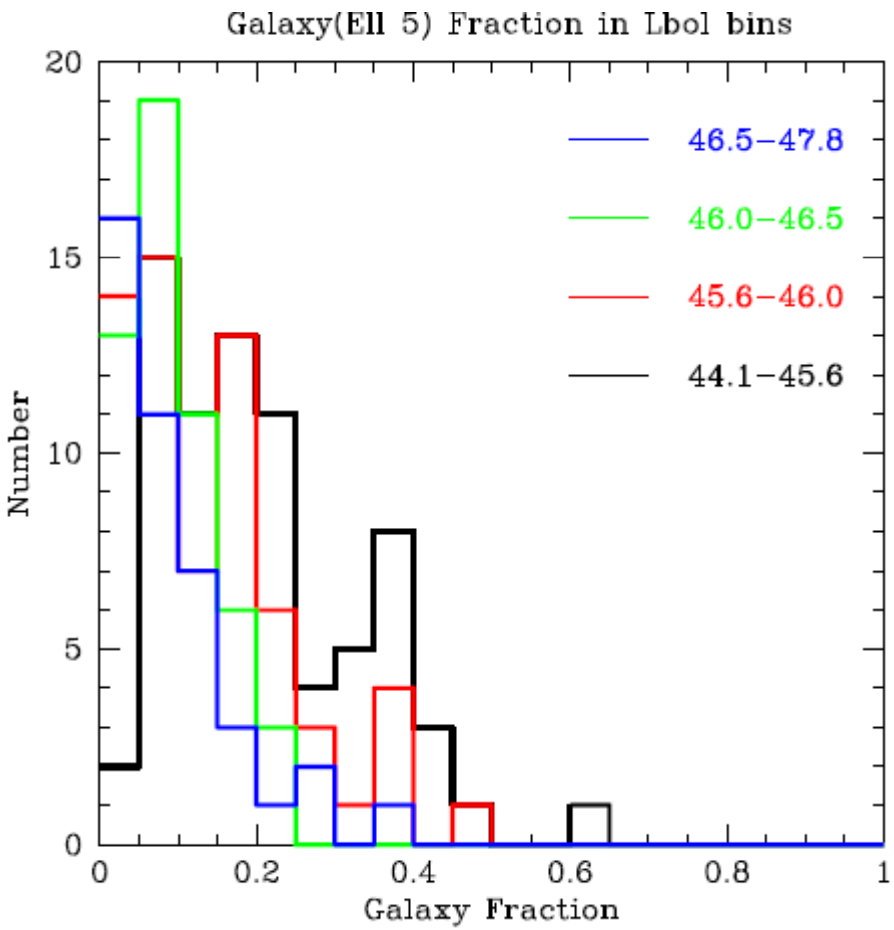
Galaxy Fraction



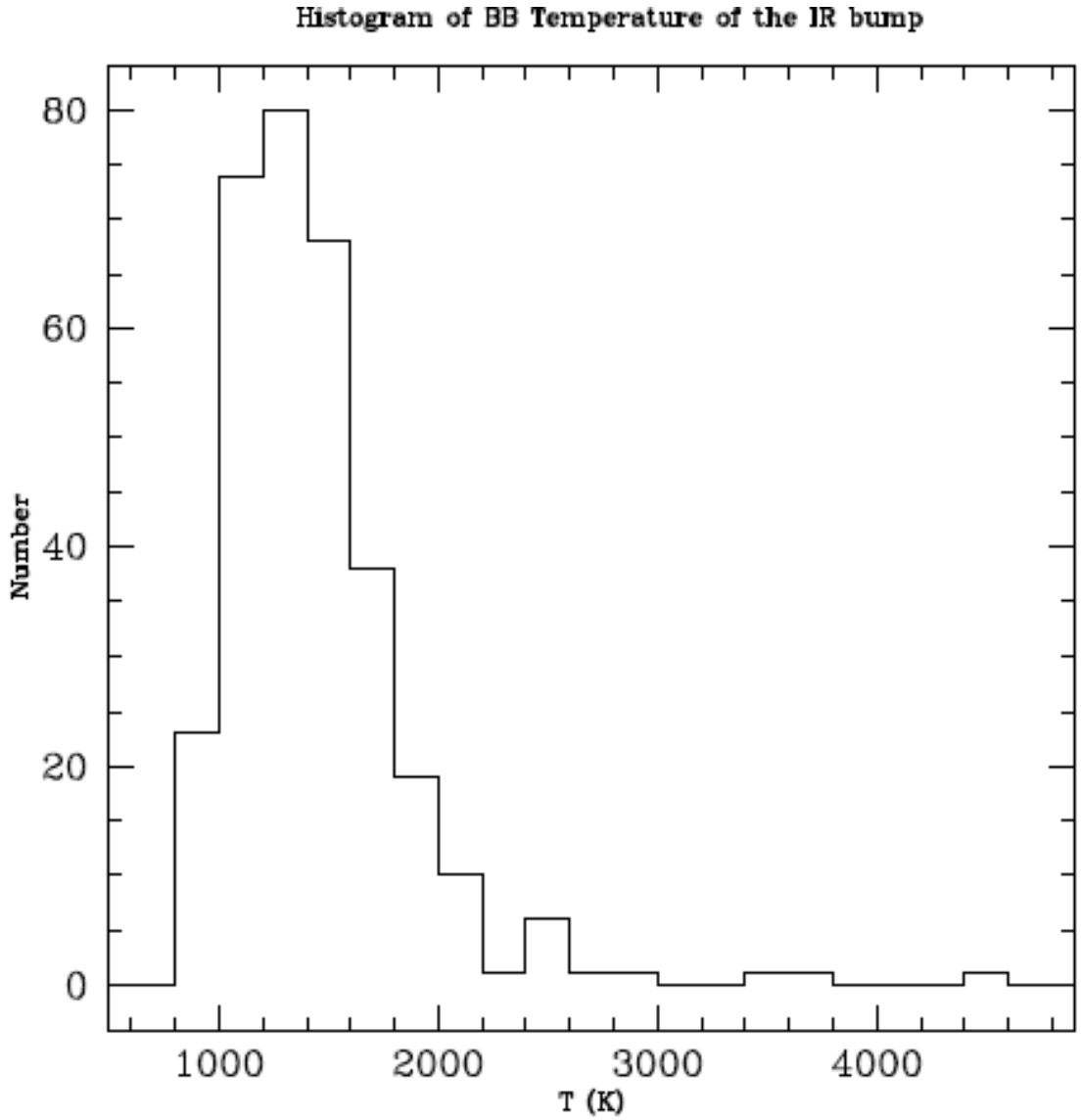


Galaxy Fraction Evolution

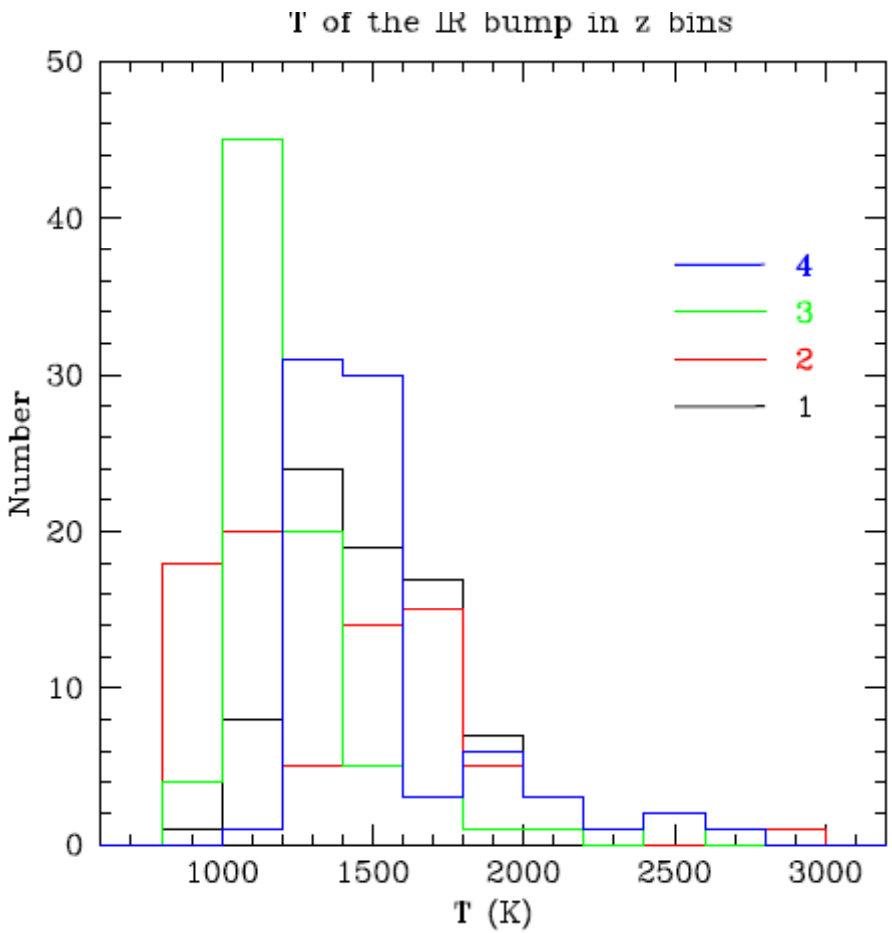


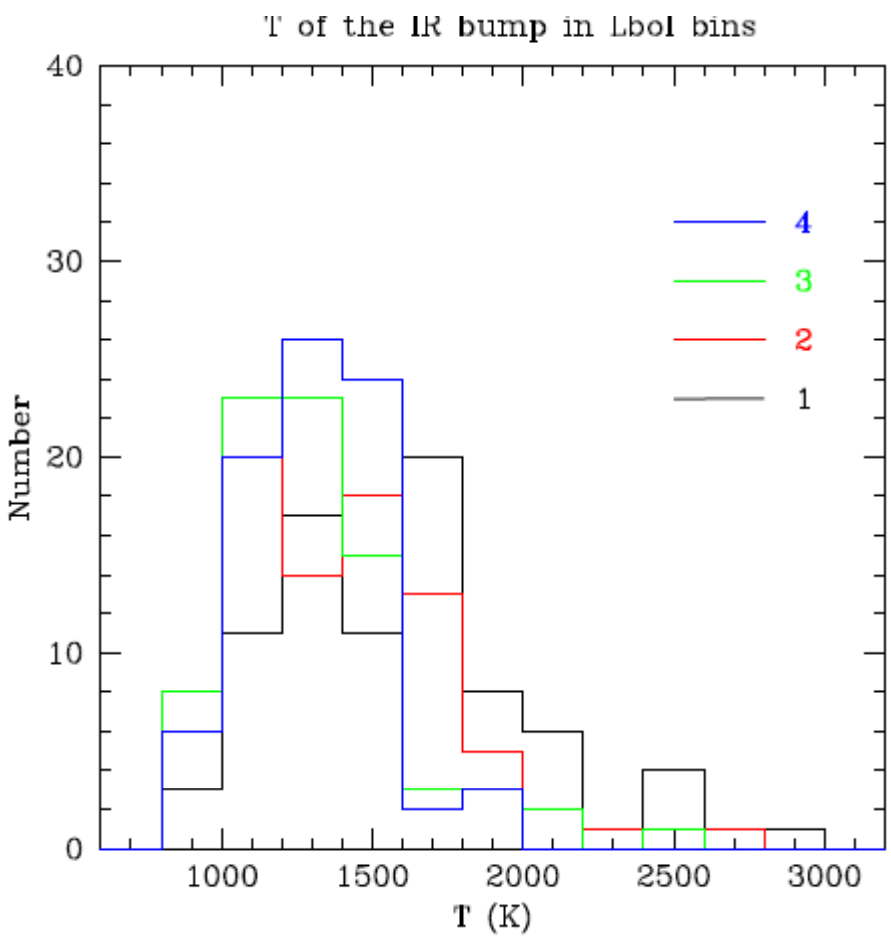


Blackbody T of IR Bump



Blackbody T of IR Evolution





Results

- AGN+Galaxy+Extinction
  - → Could explain low redshift sources
  - → Not good for high redshift sources!!

- Interesting SED evolution with z and L !?!
  (still under investigation)

Future Work: Short Term

- **SED improvements:**
- Host galaxy contamination correction:

  (1) z<1 HST imaging to separate nuclear and host light

  (2) z>1 Multicomponent (Galaxy+AGN) SED fitting

- **SED from different selection methods**

  Select different sub samples that satisfy different selection criteria and compare SED shape difference

- **Correlate continuum shape with physical parameters: L_{bol}, M, …**
- **PCA analysis**

Future Work: Long Term

- Model extreme objects, variables
- Reddening curves vs. z,L

- C.f. Spitzer- , submm- , Chandra-selected AGNs:
- approach bolometric selection
- extend luminosity range