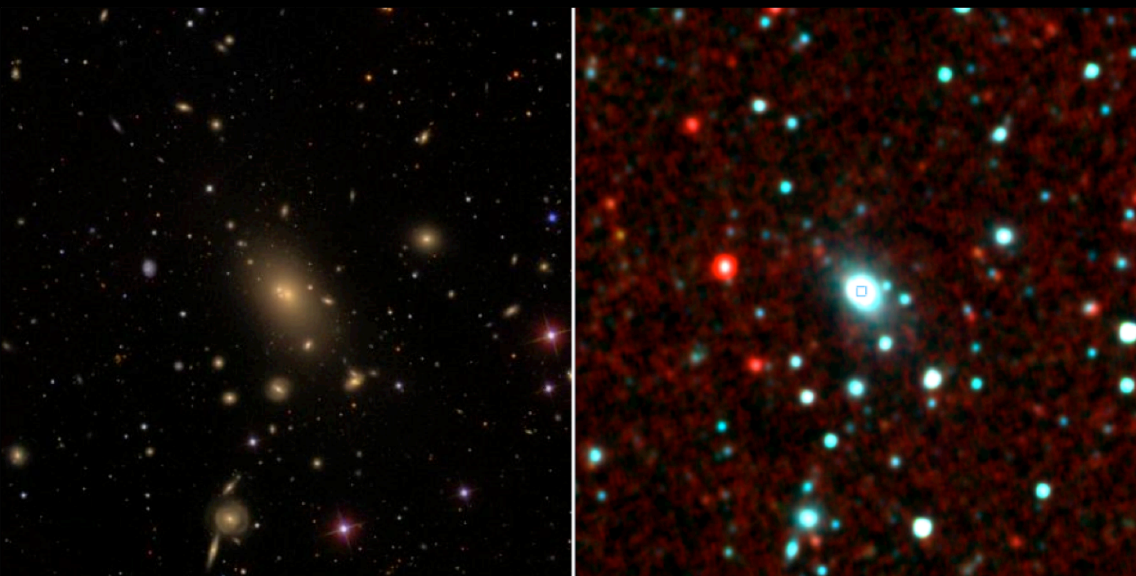


A WISE View of the Abell 2199 Supercluster



Ho Seong HWANG¹,

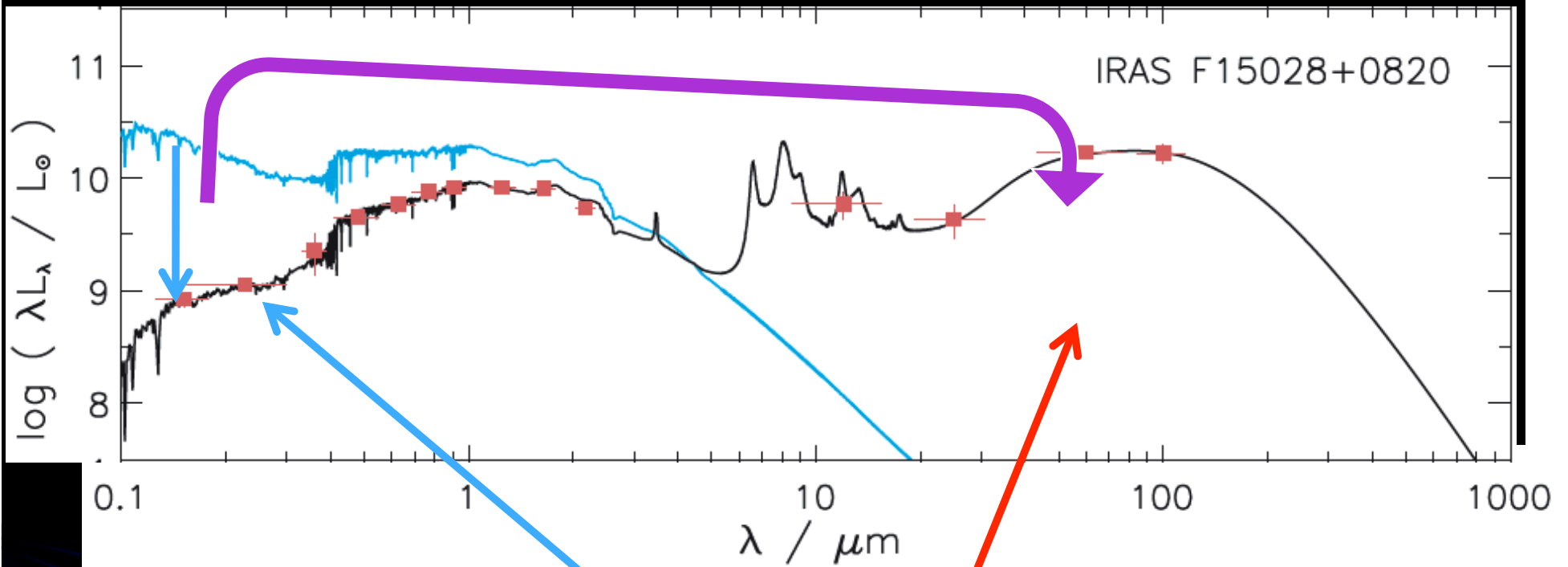
Margaret J. Geller¹, Antonaldo Diaferio^{2,3} Kenneth J. Rines⁴

¹SAO, ²Università di Torino, ³INFN Torino, ⁴WWU

2012 July 10

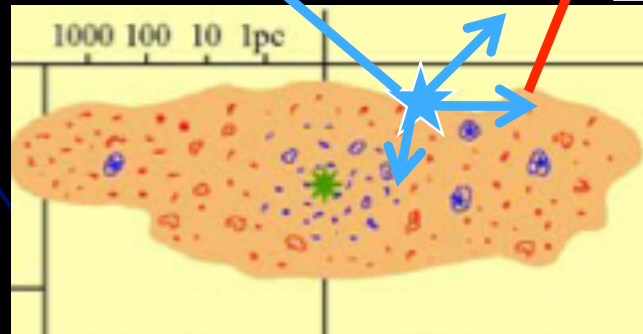
Star Formation and Gas Reservoirs in Nearby Groups and Clusters

Galaxy's Spectral Energy Distribution



UV

IR : Dust
heated by UV

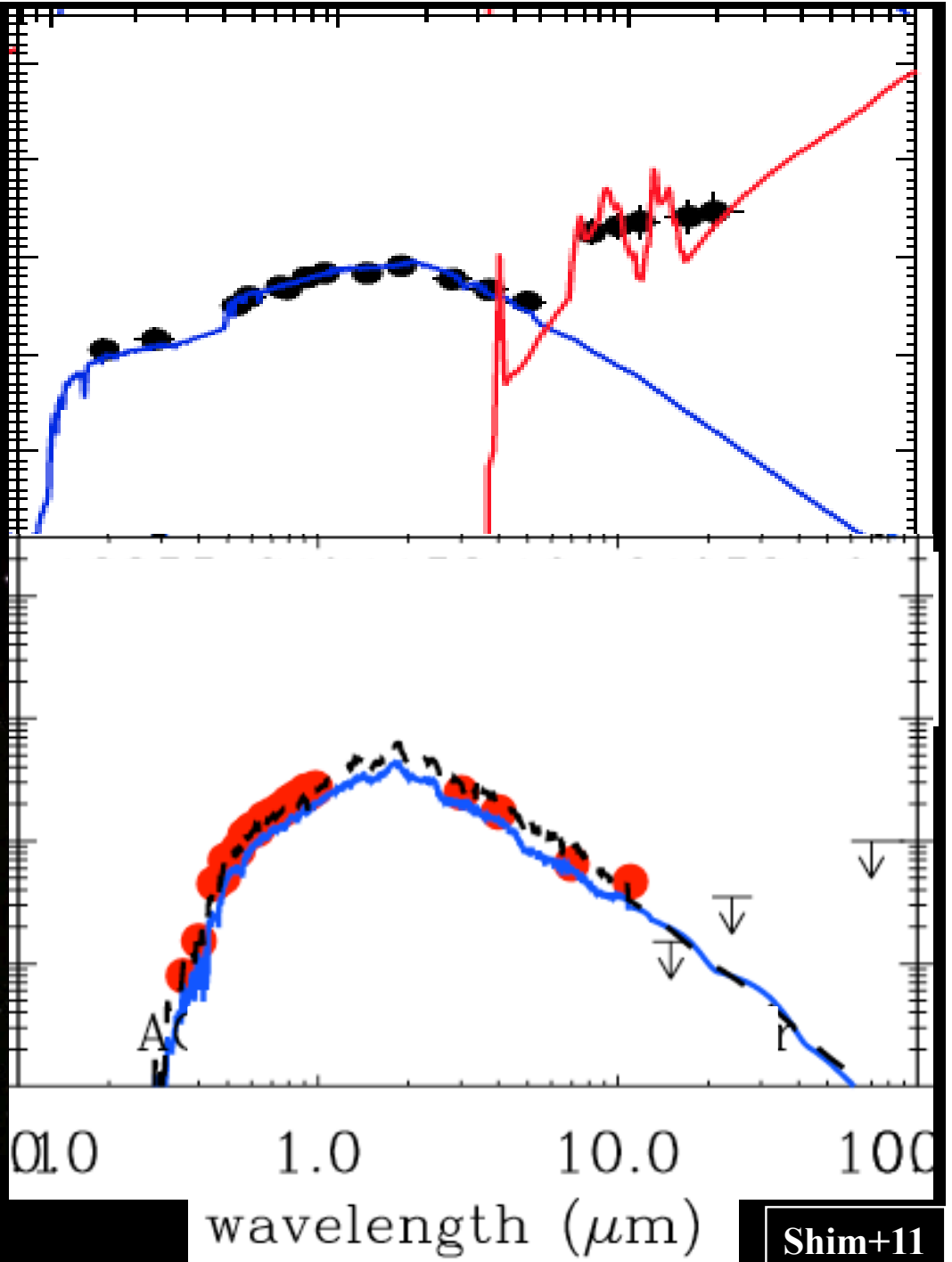


Spiral Galaxy M81



Hubble
Heritage

NASA, ESA, and The Hubble Heritage Team (STScI/AURA) • Hubble Space Telescope ACS • STScI-PRC07-19a





Wide-field Infrared Survey Explorer

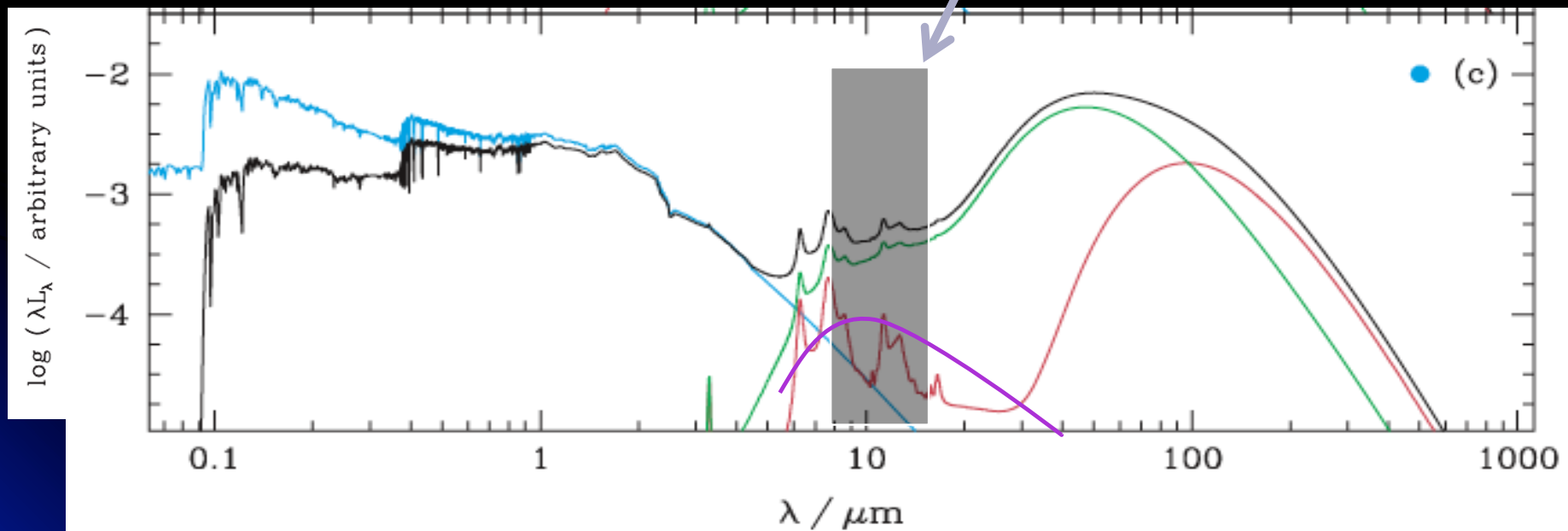
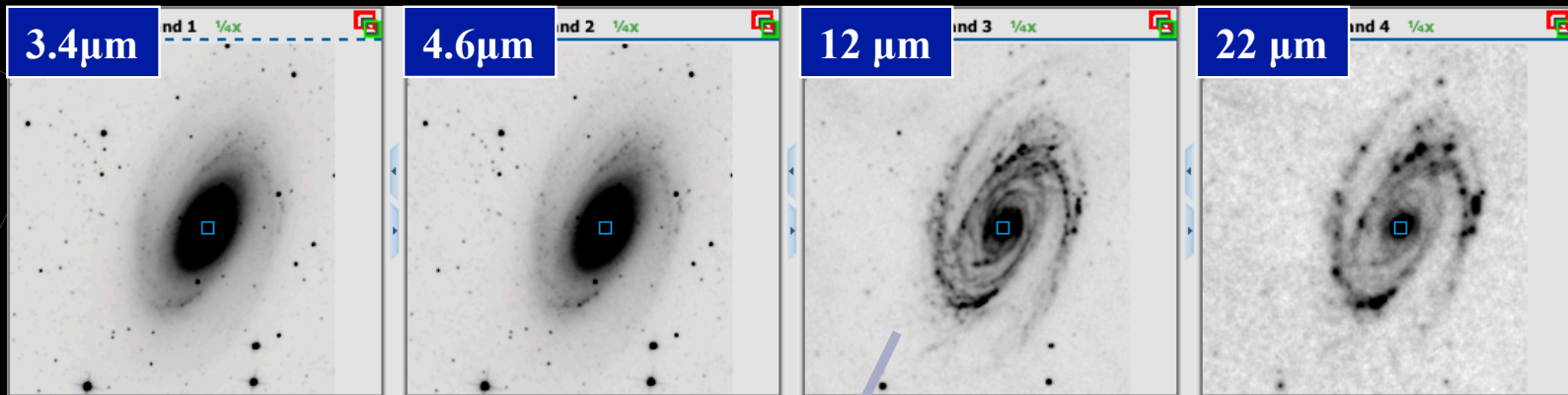


UCLA

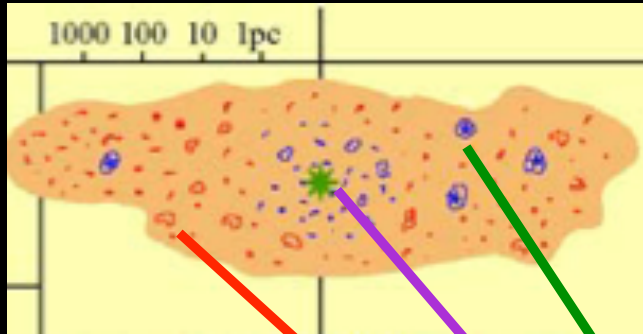
JPL



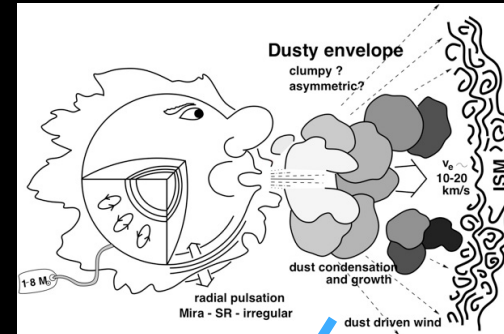
**M81:
HST/Optical**



At $\sim 12\mu\text{m}$



Haas+03



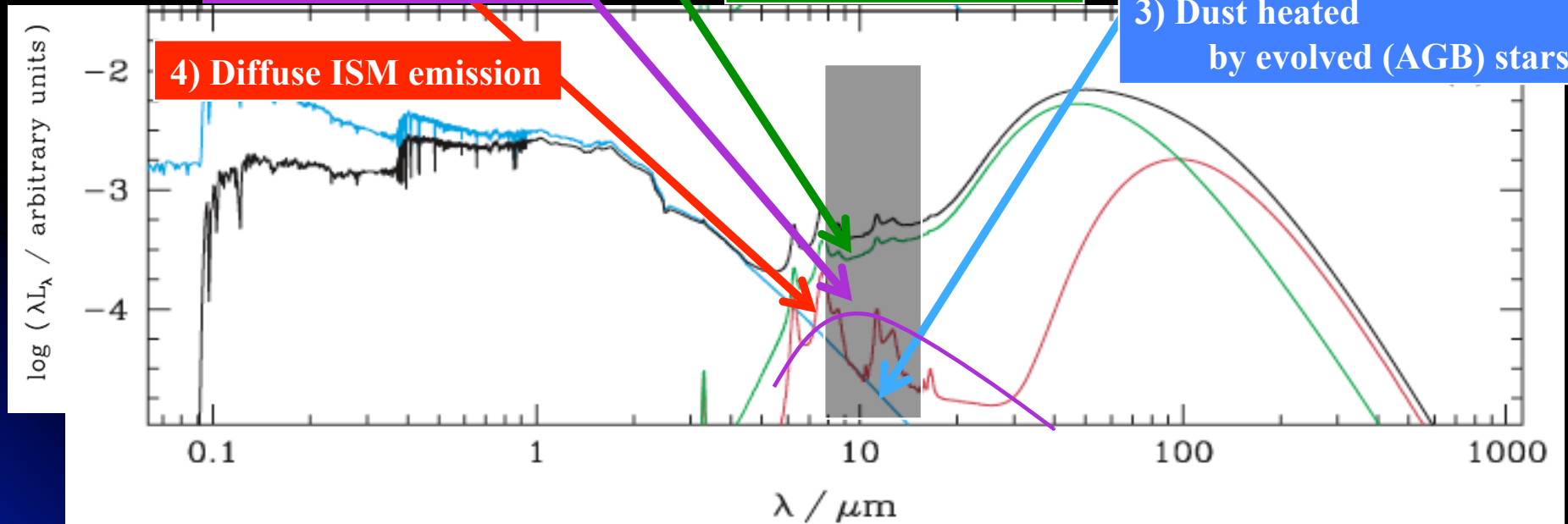
Marengo+

1) Dust heated by AGN

2) Dust heated by SF

3) Dust heated by evolved (AGB) stars

4) Diffuse ISM emission

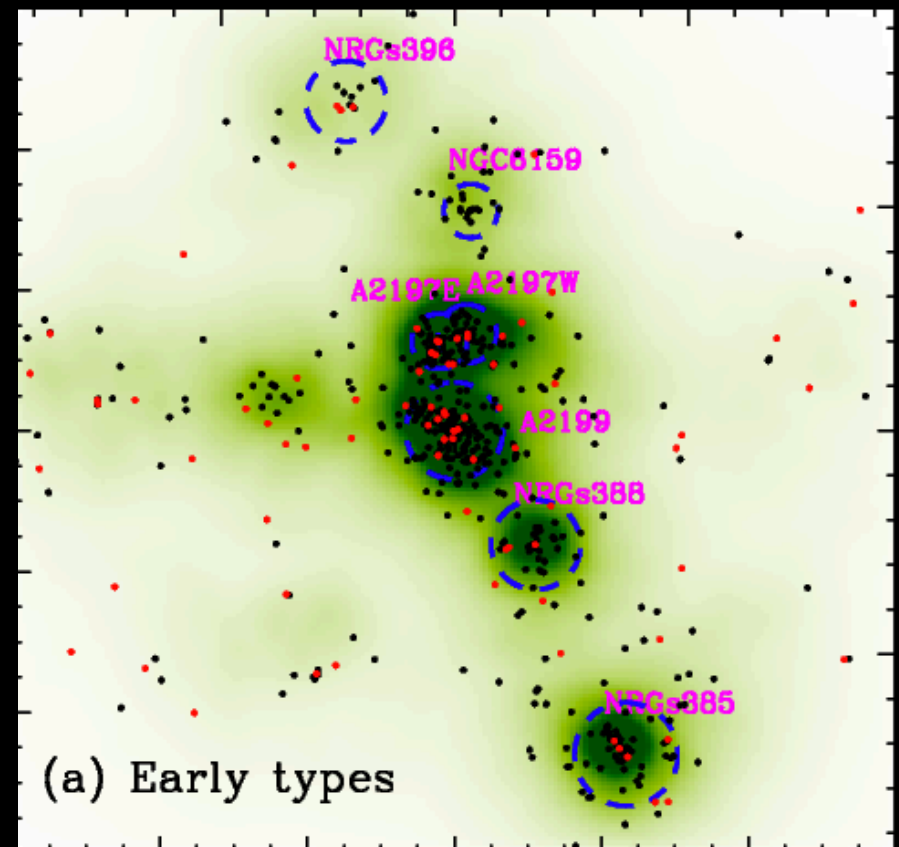
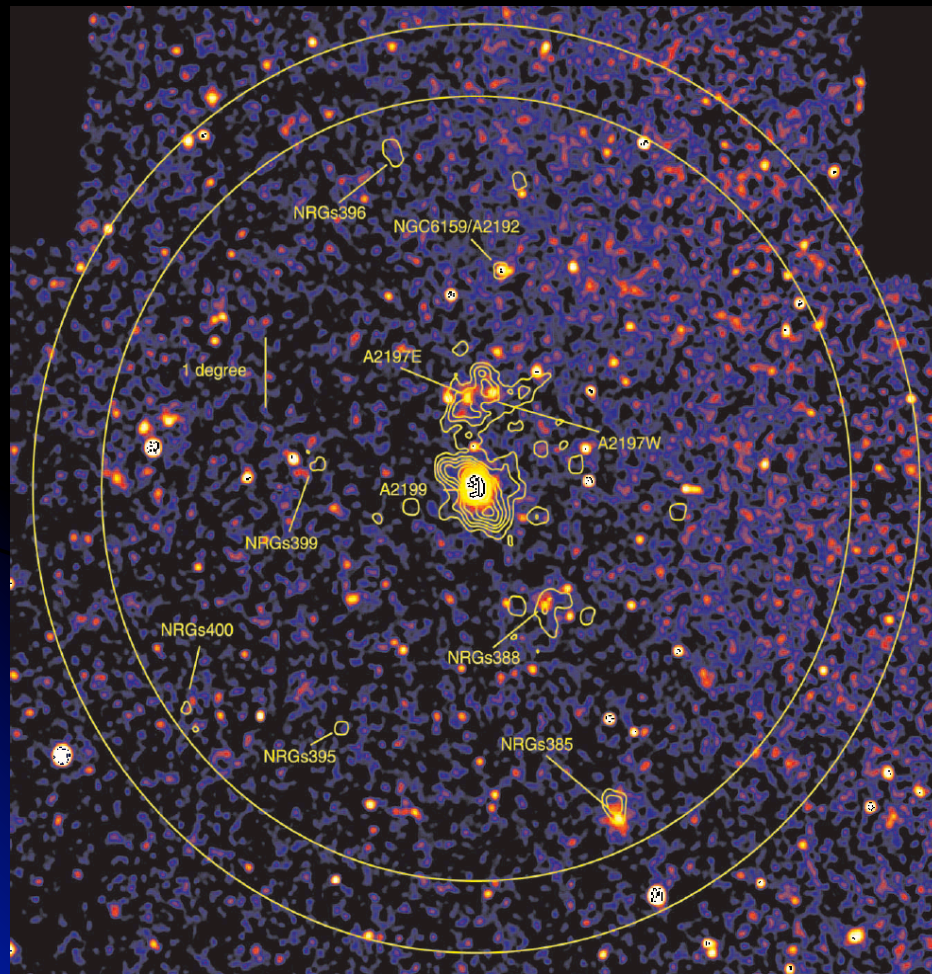


This SED is not 100% correct, but is to show a schematic view.

da Cunha+08

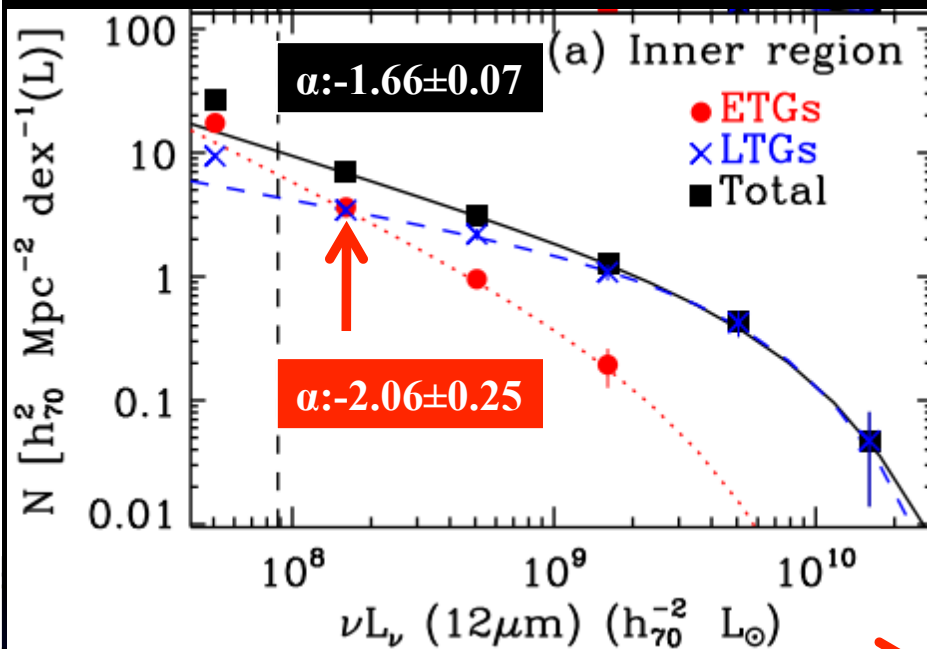
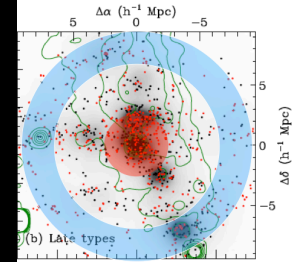
Abell 2199 Supercluster

~12 arcdeg ($\approx 18 h^{-1}\text{Mpc}$)



Rines+02; Hwang+12; G.-H.Lee+12

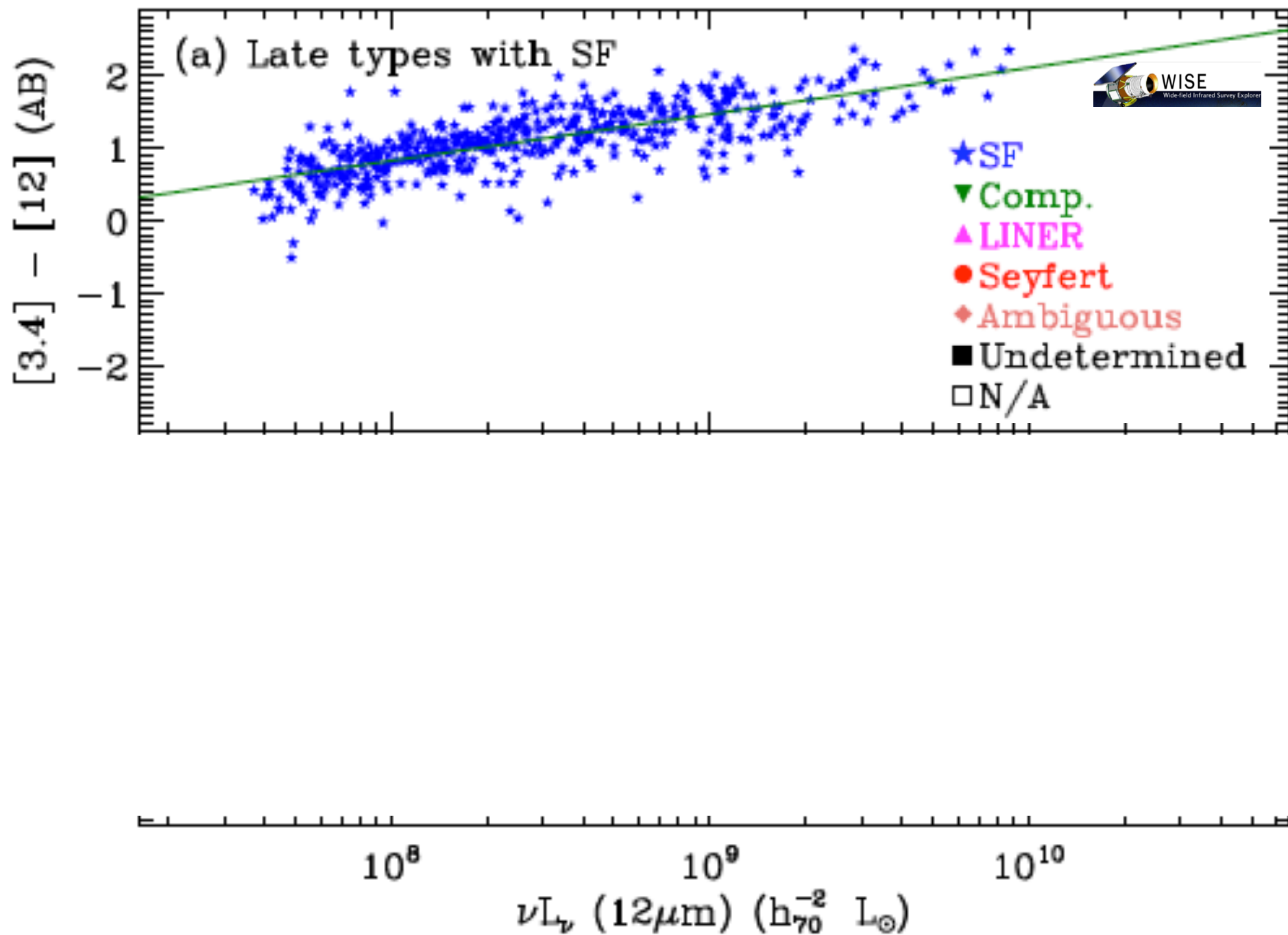
12 μ m Luminosity Functions

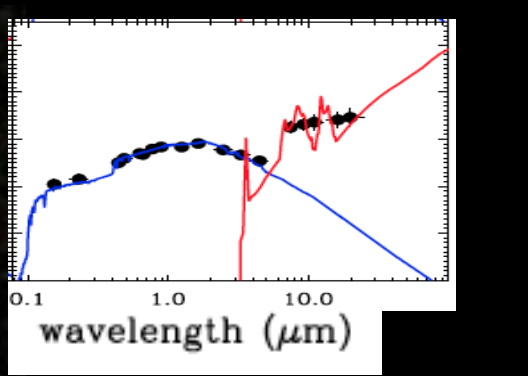
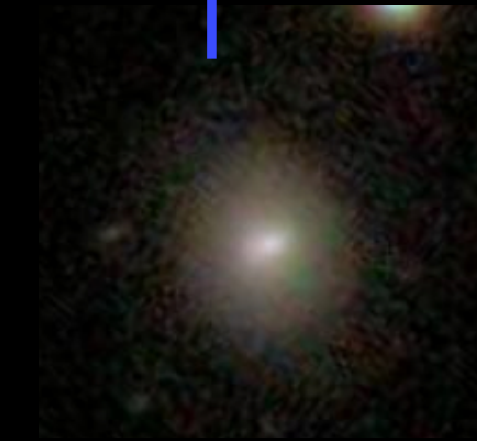
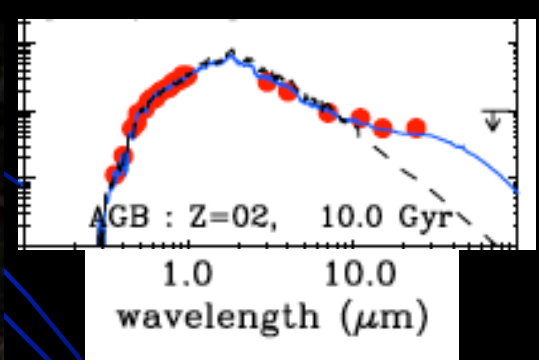
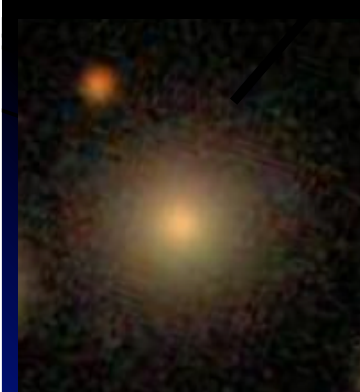
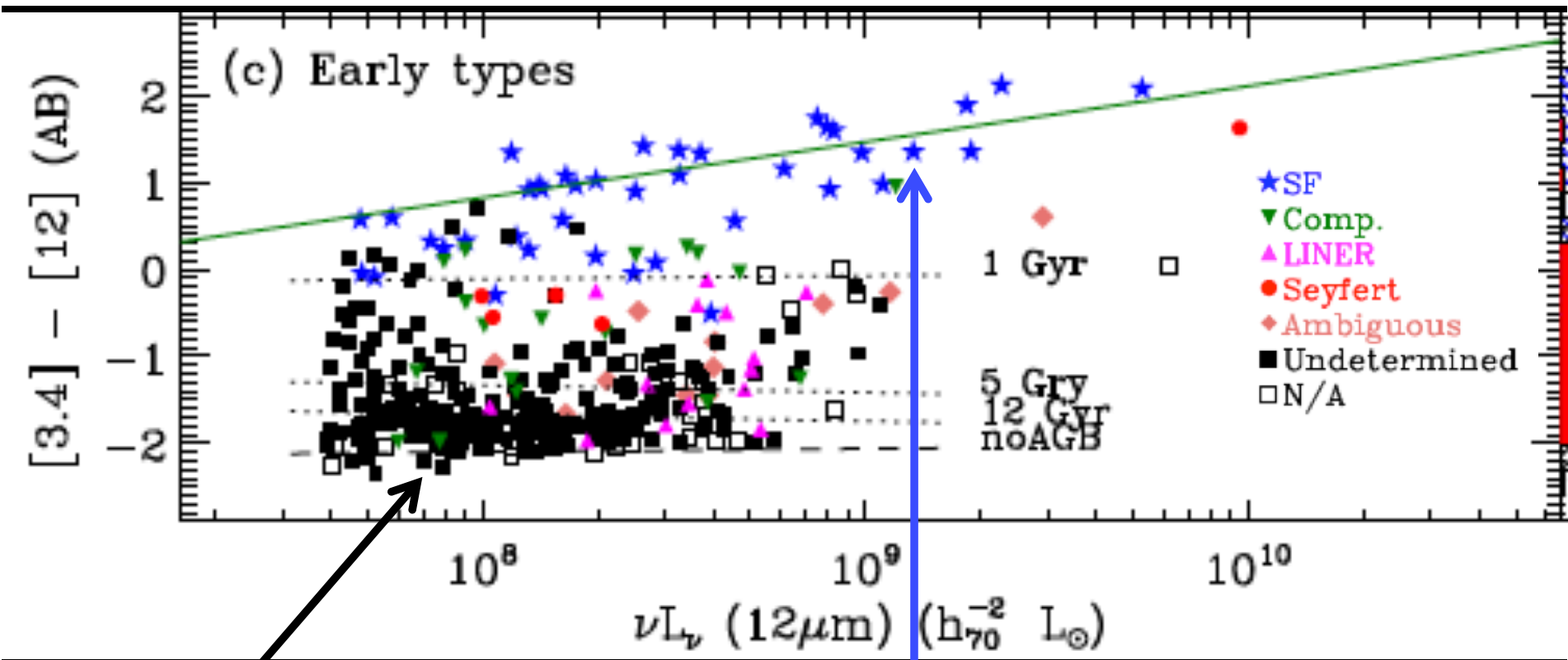


More
Luminous

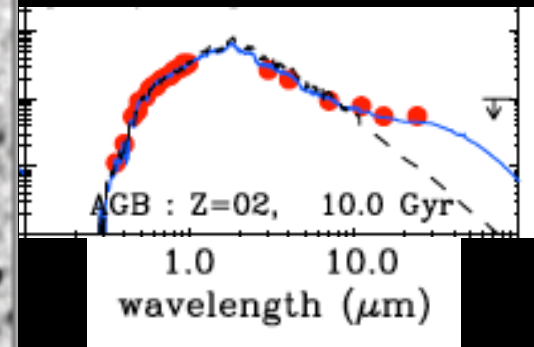
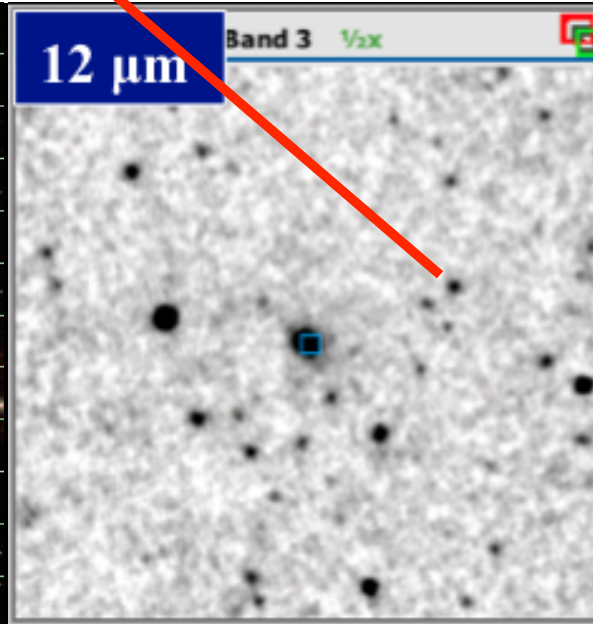
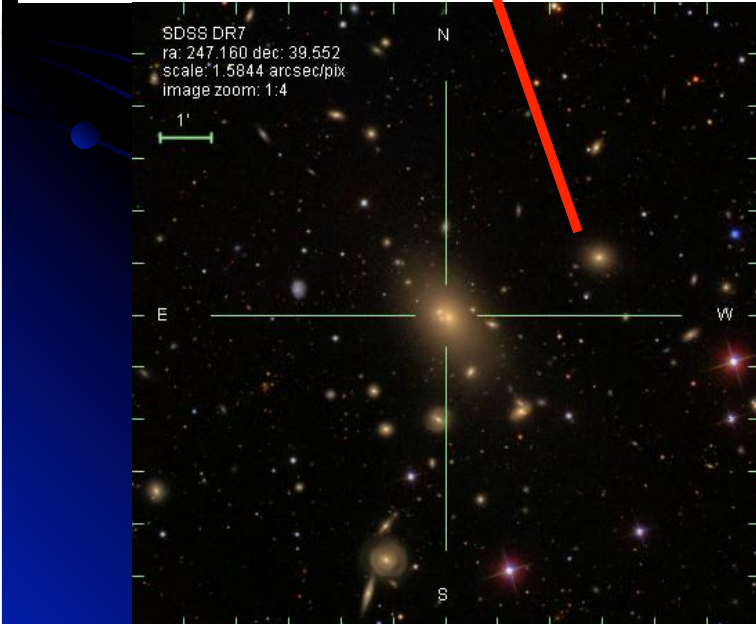
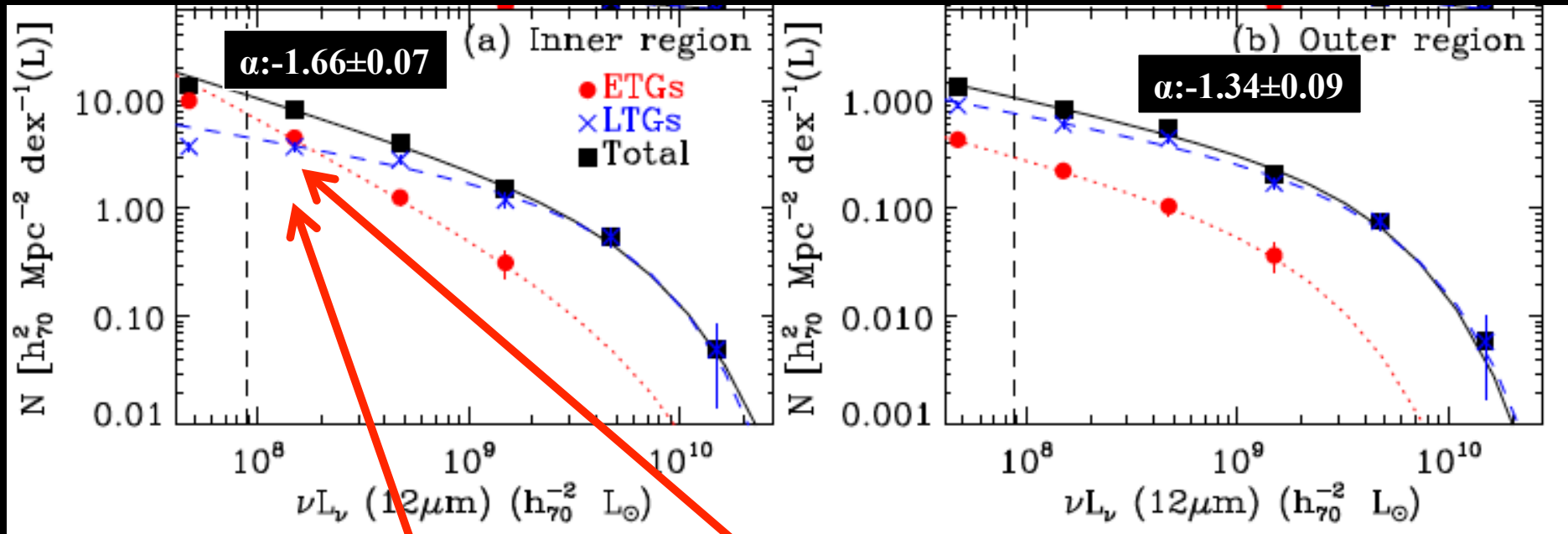
More
Luminous

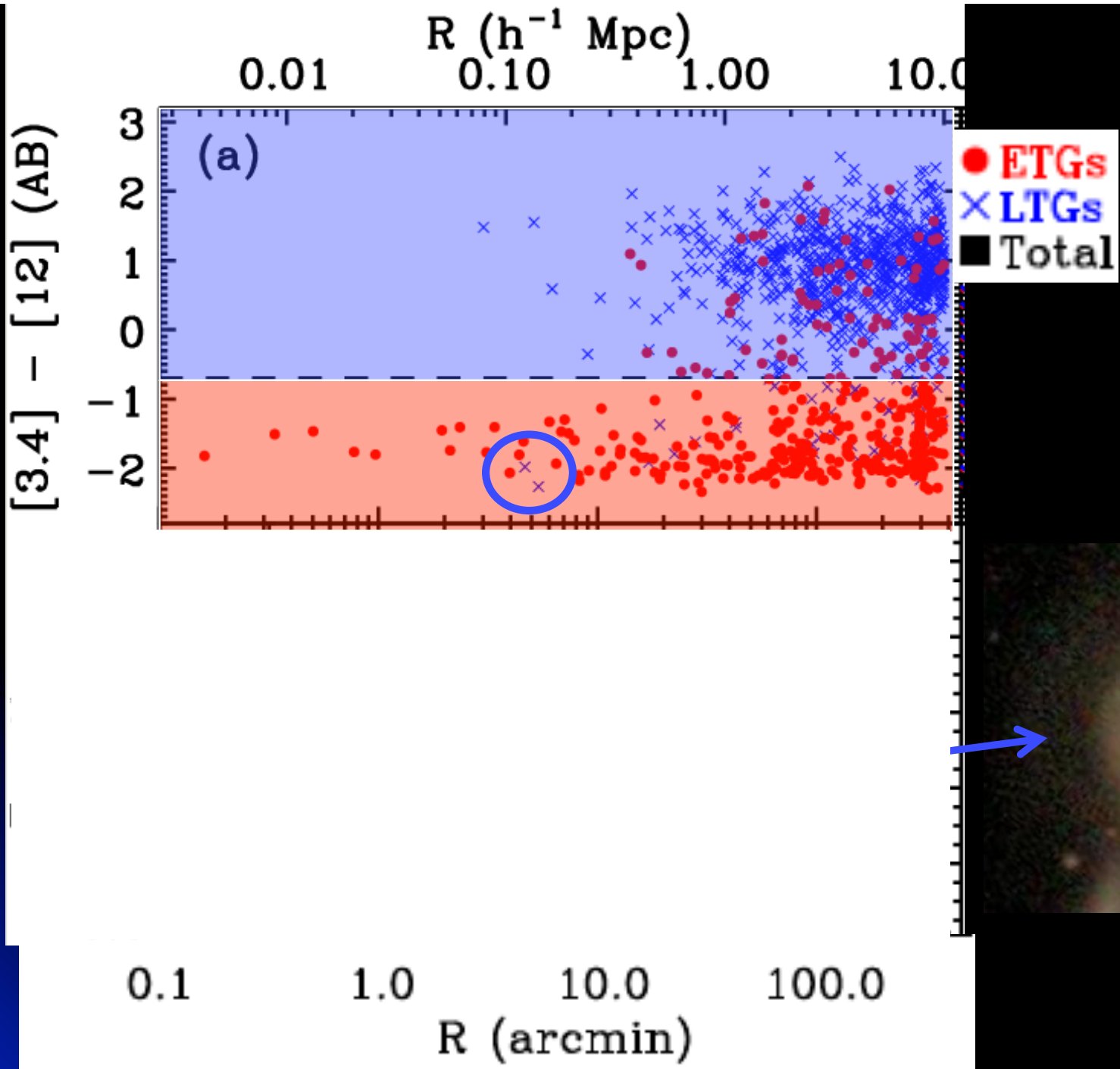
Q: Why do many ETGs
in the inner region emit at 12 μ m?

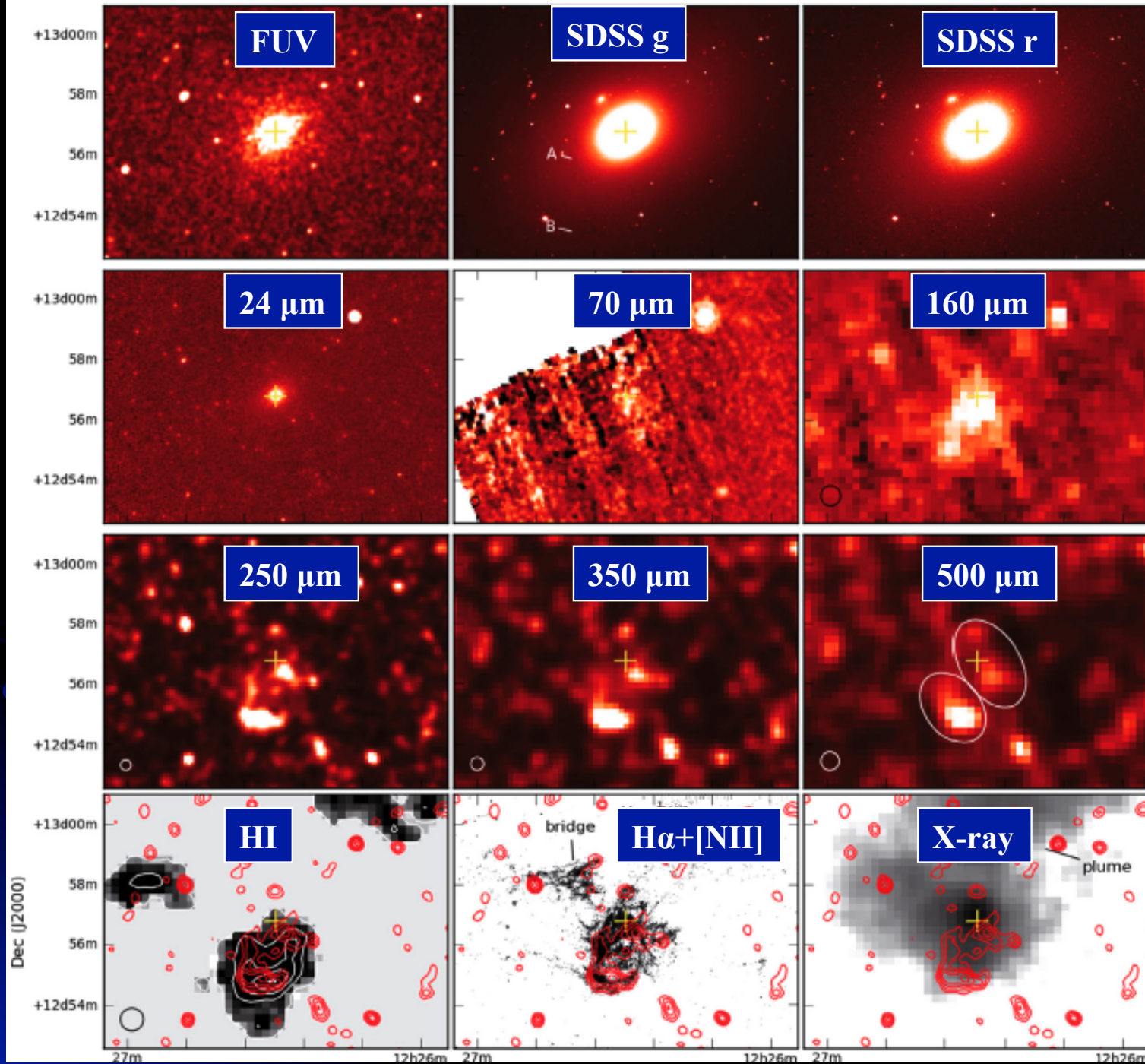




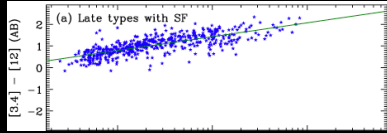
12 μm Luminosity Functions



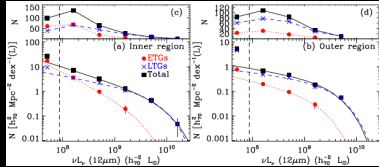




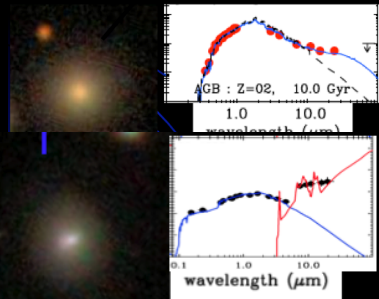
M86 (Gomez+10)



➤ We found an “MIR star-forming sequence”



➤ The faint-end slopes of 12 μm LFs strongly change with environment: ETGs



➤ Many cluster ellipticals are not completely quiescent

Thank you!