

WISE photometry in support of Large-Area Surveys

THE PAHS STRIKE BACK

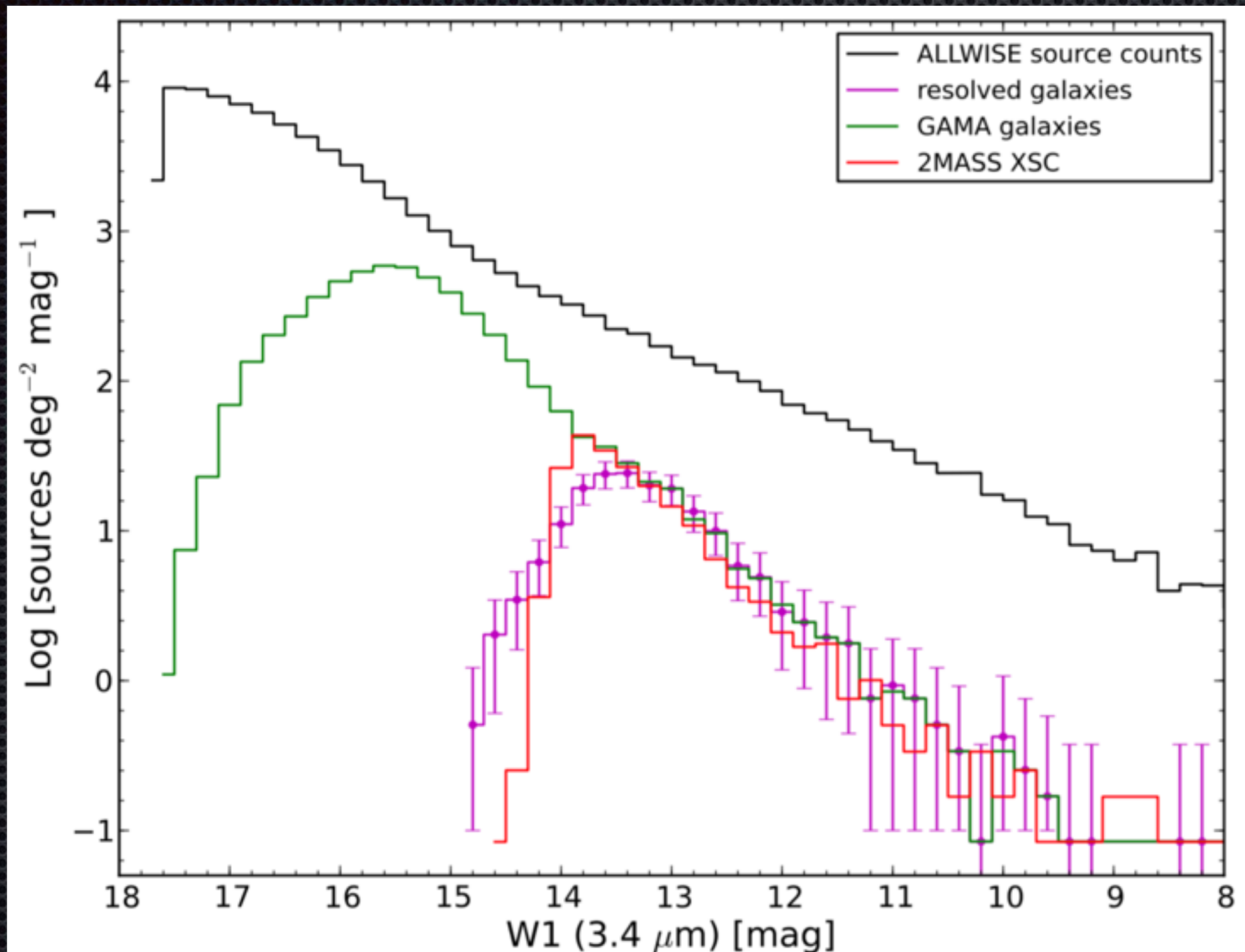
A/Prof. Michelle Cluver
michelle.cluver@gmail.com

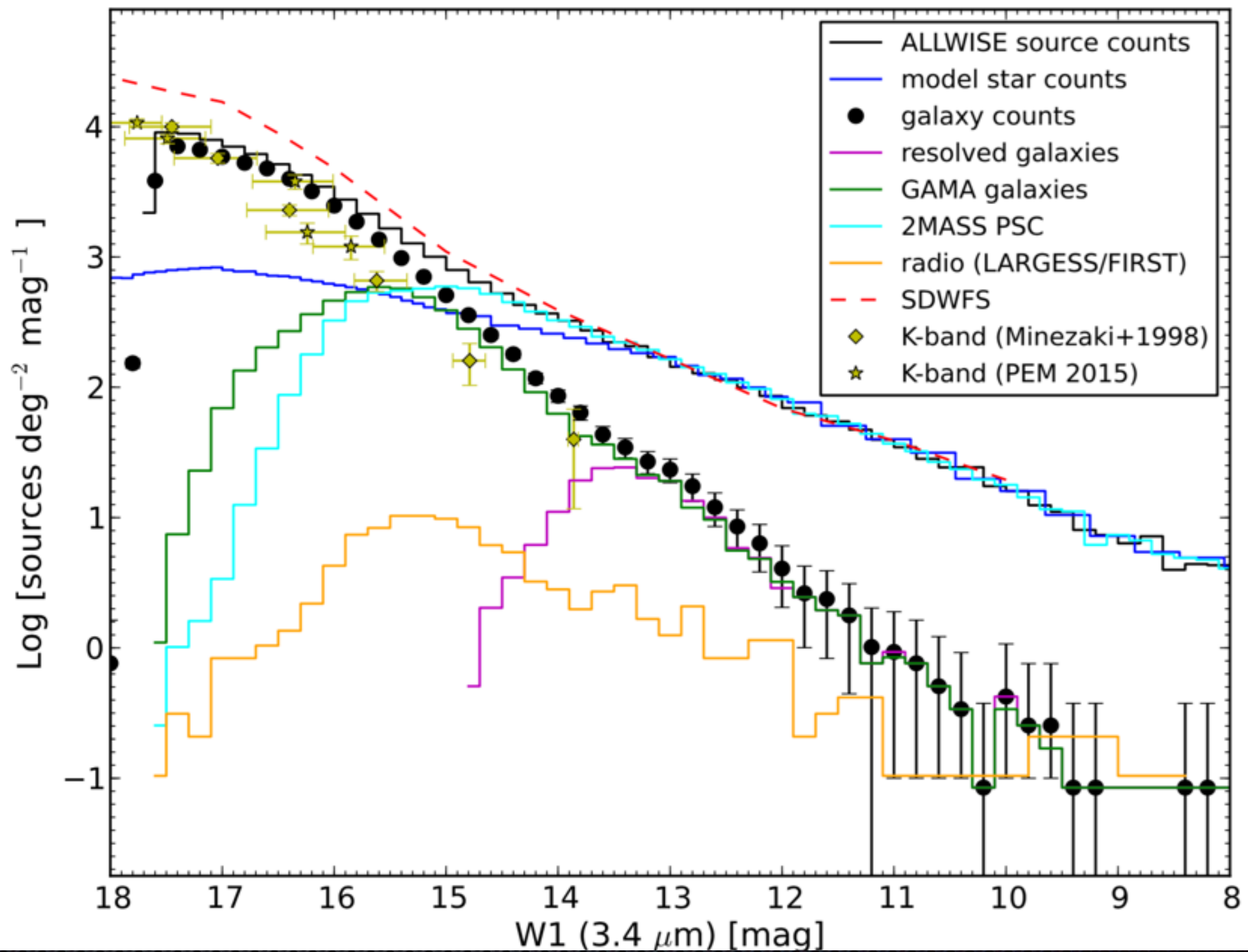
wide-field infrared survey explorer

- ✧ WISE launched on December 14, 2009
- ✧ Primary mission until September 2010
- ✧ Cool — cryogenic (3.4, 4.6, 12 & 22 μm)
- ✧ Calm — very stable imaging platform
- ✧ Collecting — Reactivated in 2013 (3.4 and 4.6 μm are passively cool), near-earth objects —> NEOWISE



GAMA G12

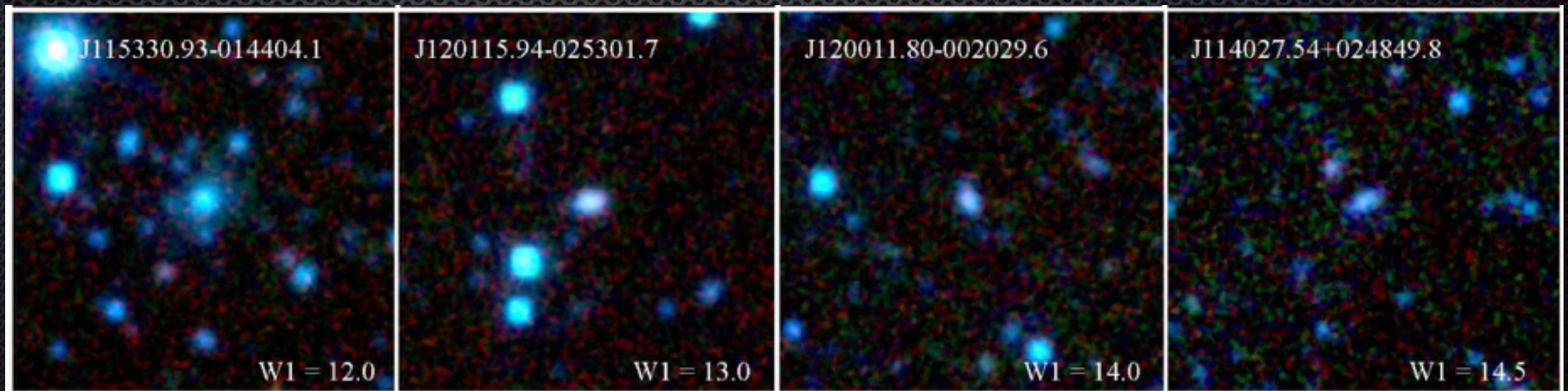
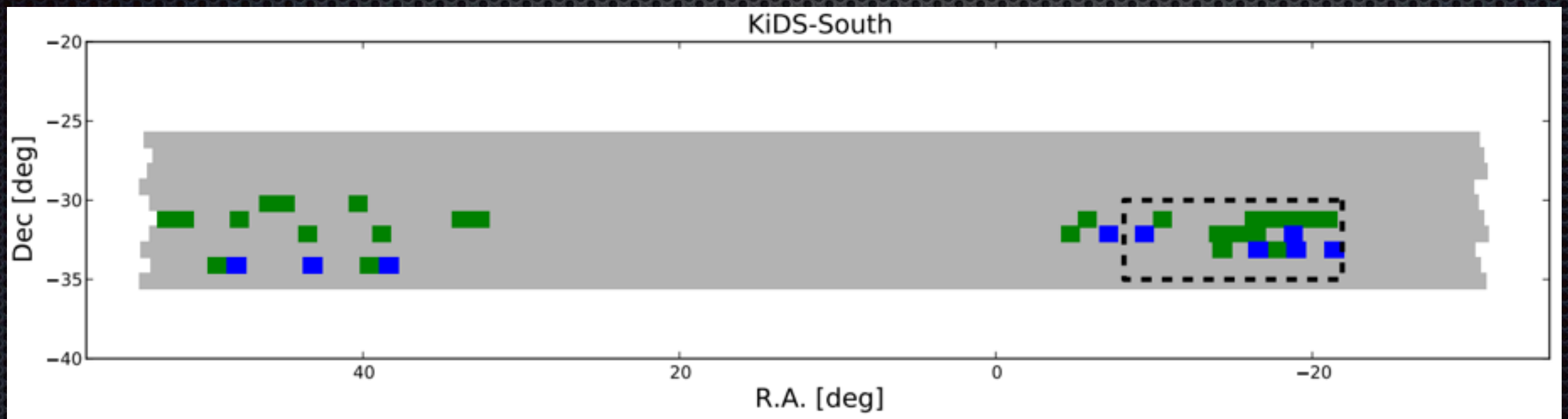




WISE-KiDS-S

P.I. Marc Harris (PhD Student, UWC)

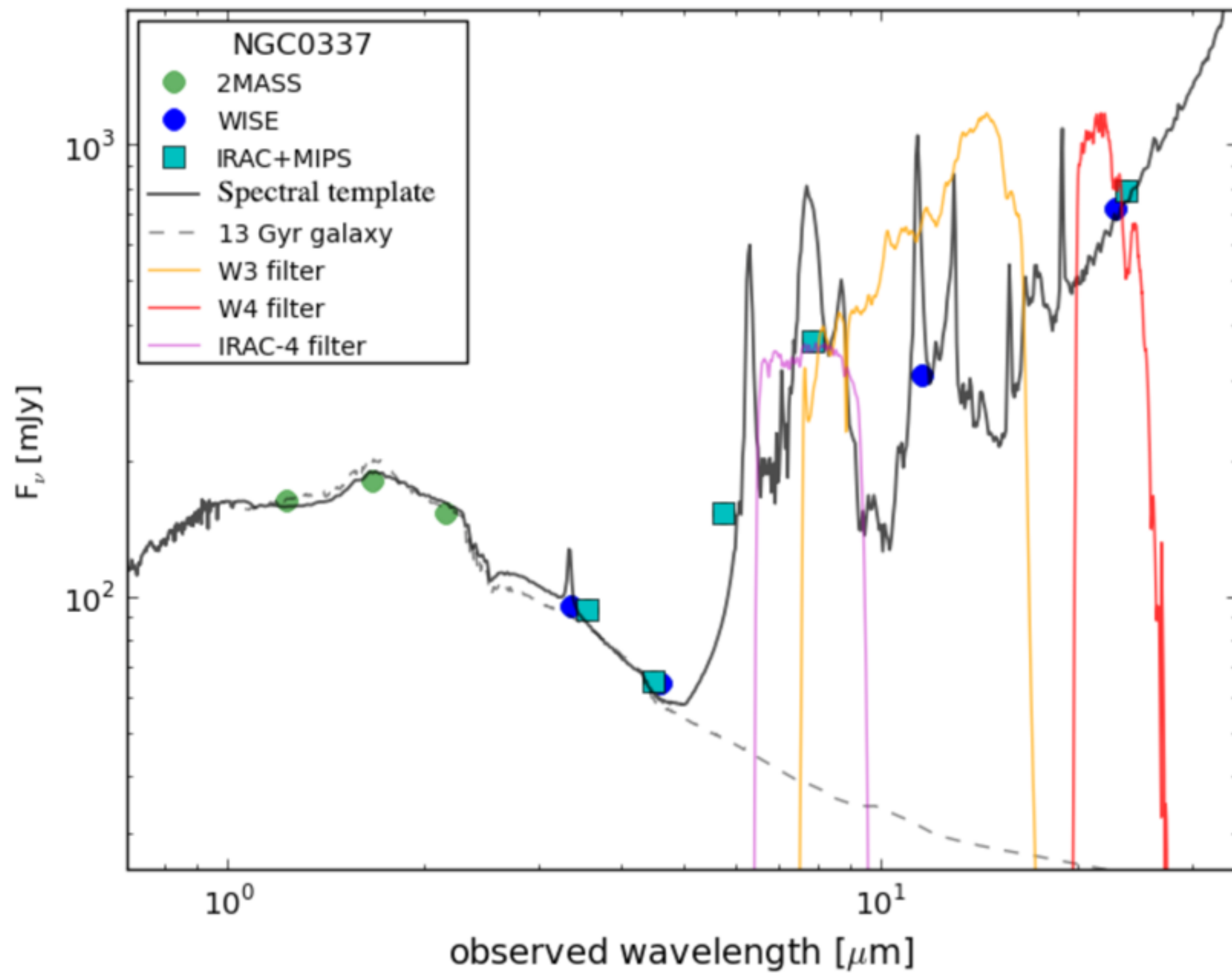
- ✧ 1500 square degrees



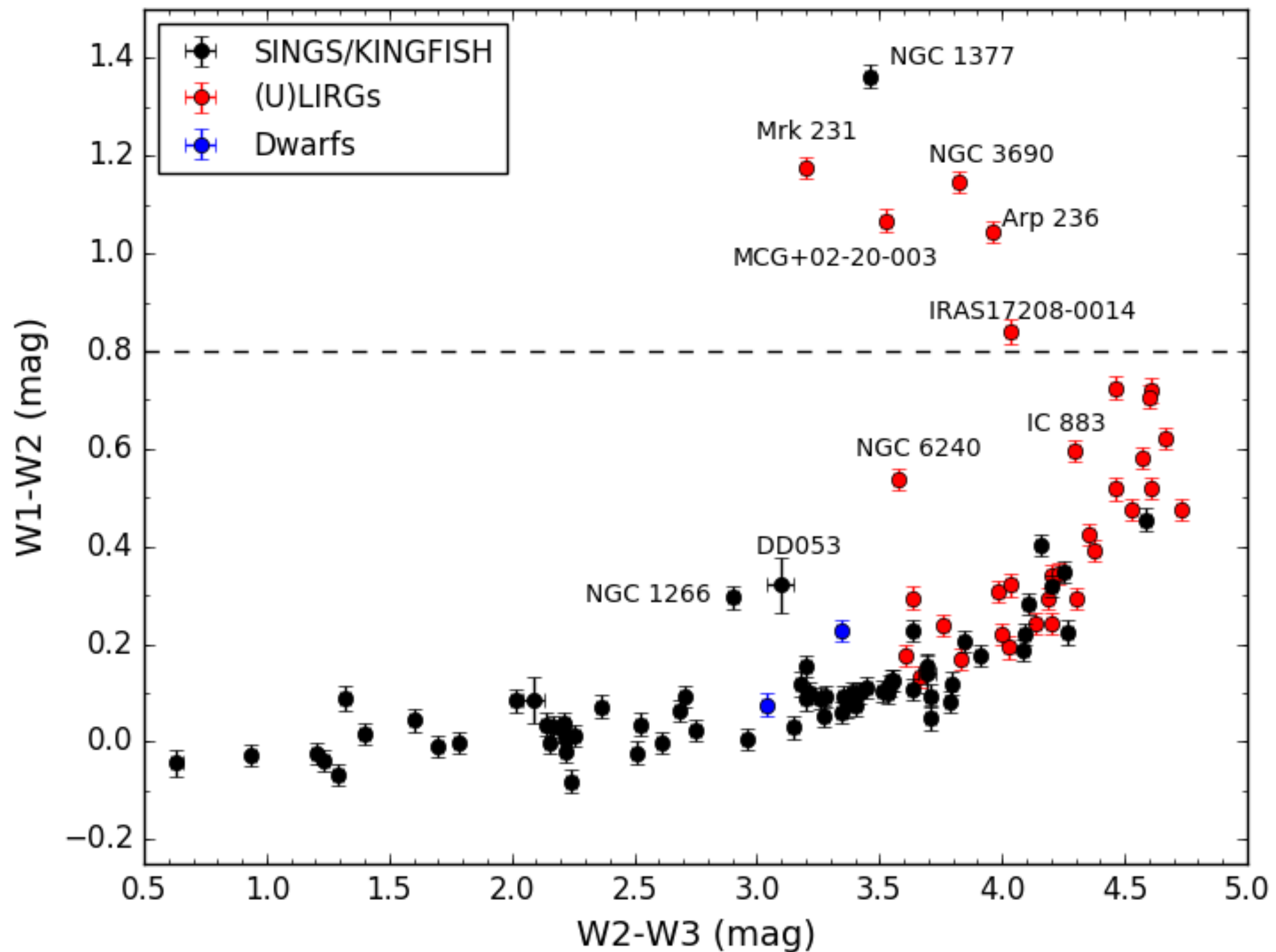


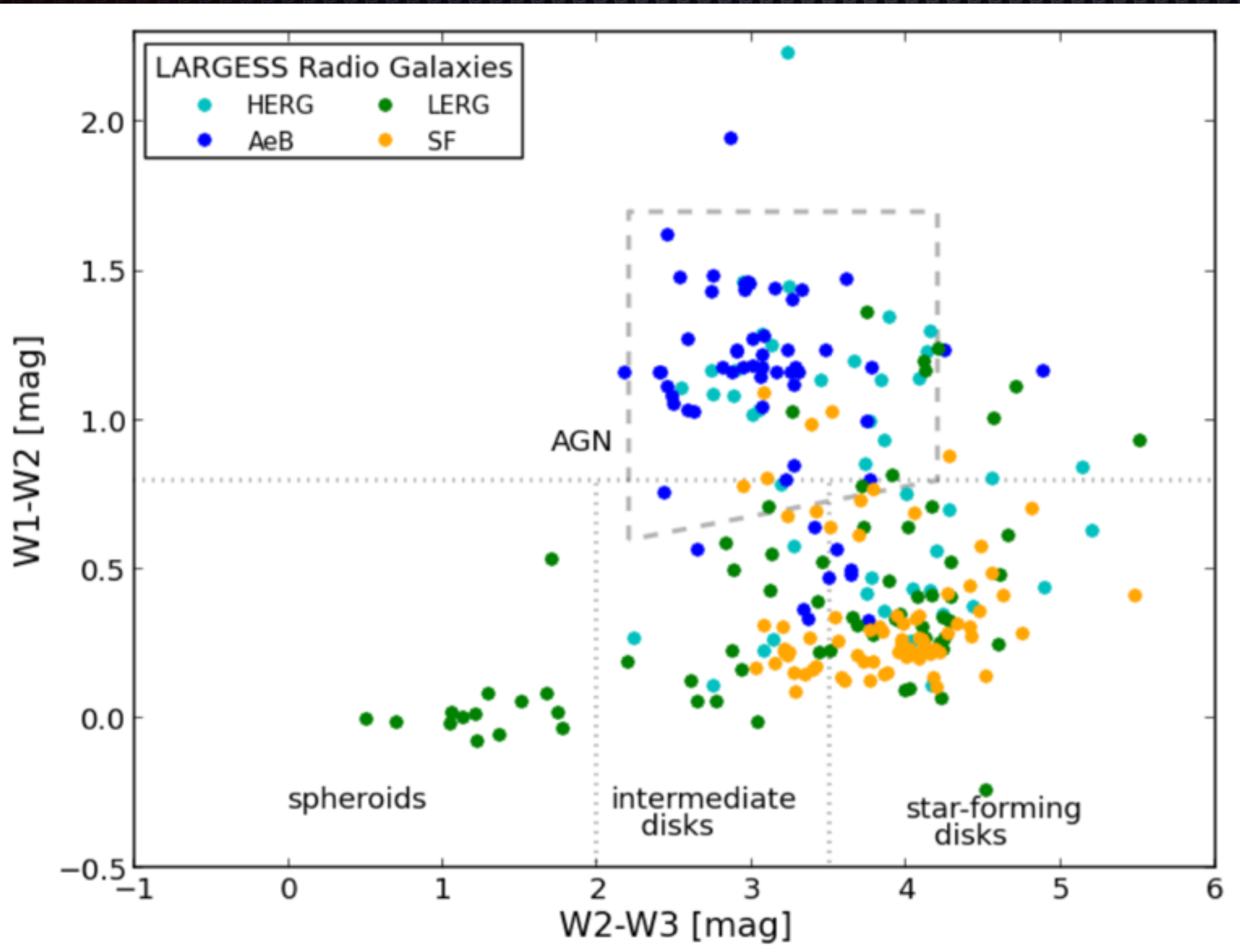
Rough numbers

- ✦ $W1 \sim 25 \mu\text{Jy}$ (5 sigma) — 18 mag
- ✦ $W3 \sim 150 \mu\text{Jy}$ (5 sigma) — 13.2 mag
- ✦ ATLAS CDFS Xmatch (5") — W1 (72%), W3 (39%)



SINGSFISH: 79 galaxies





See also Gurkan, Hardcastle & Jarvis (2013)

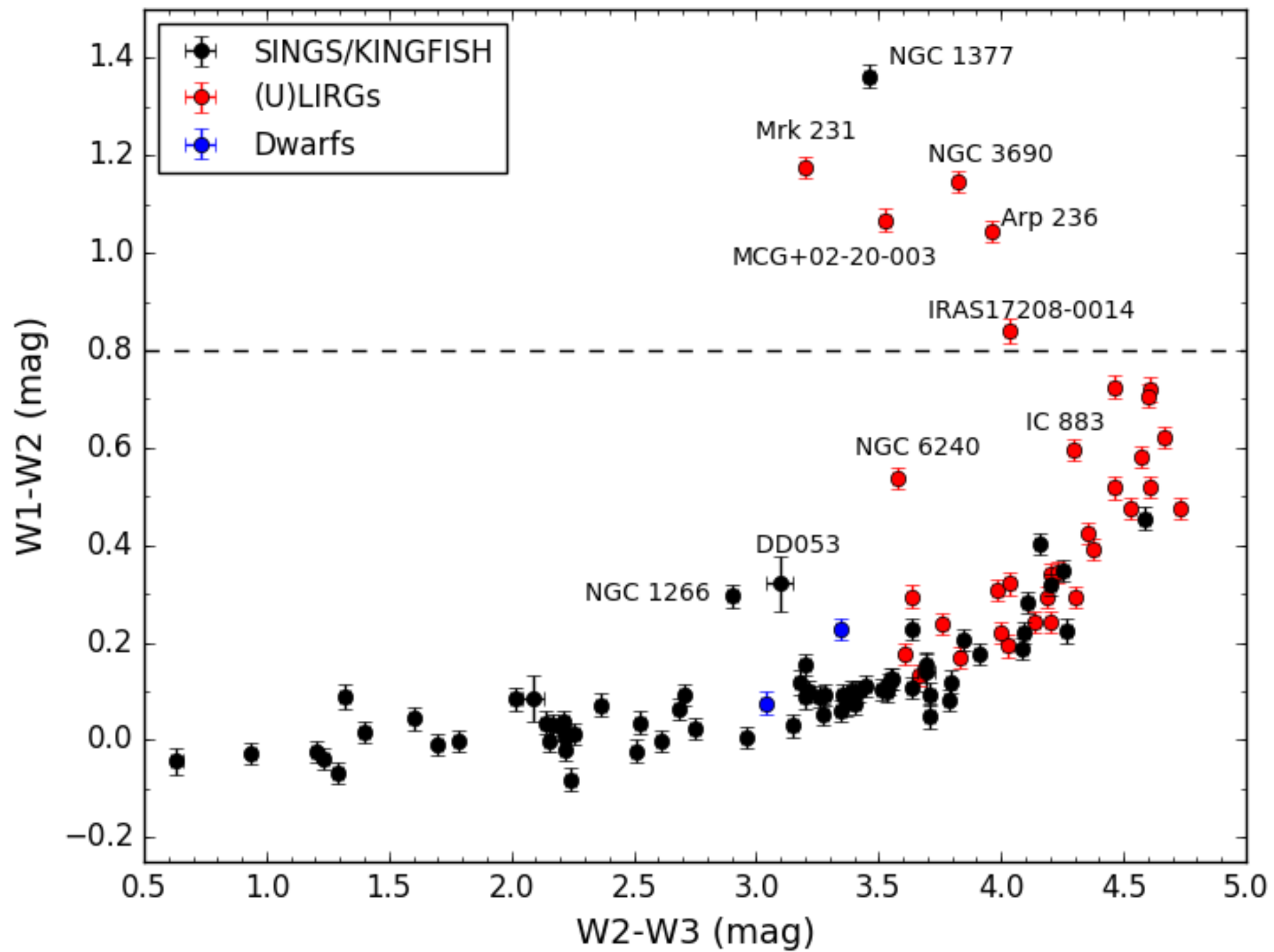
How radio-active is my galactic nucleus?



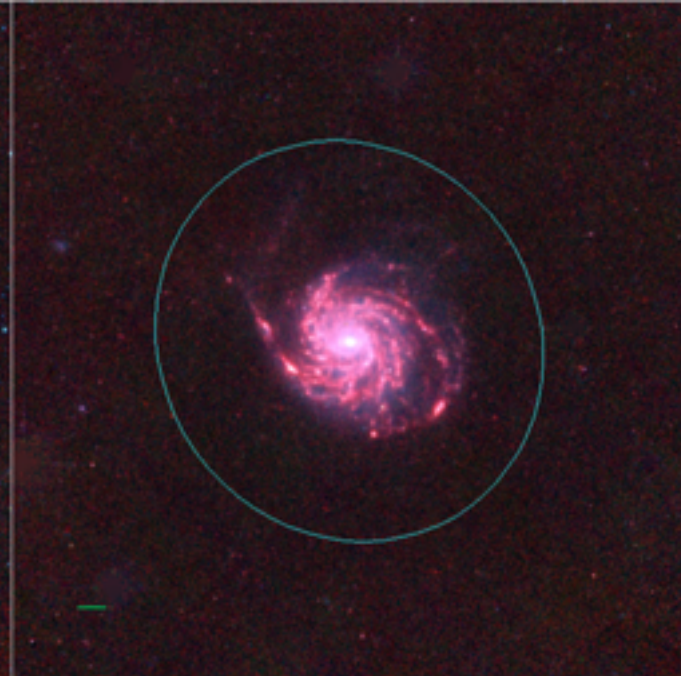
Borg's Rating of Perceived Exertion (RPE) Scale

Perceived Exertion Rating	Description of Exertion
6	No exertion. Sitting & resting
7	Extremely light
8	
9	Very light
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard
16	
17	Very hard
18	
19	Extremely hard
20	Maximal exertion





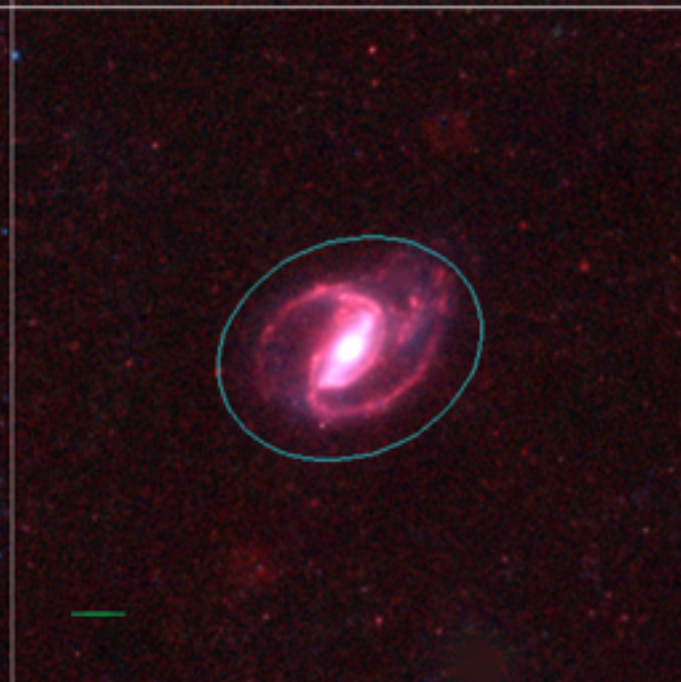
M101 (NGC 5457)



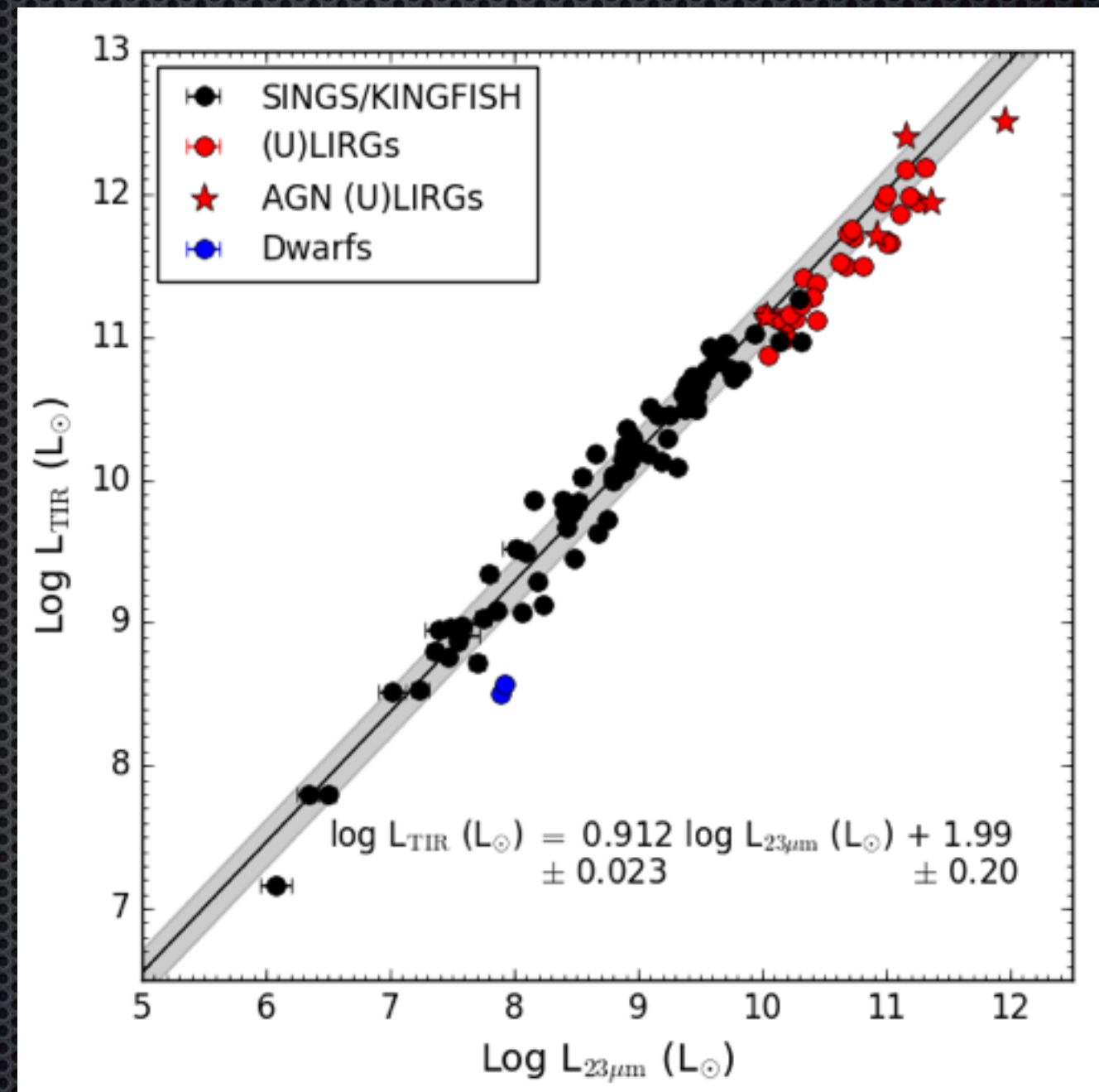
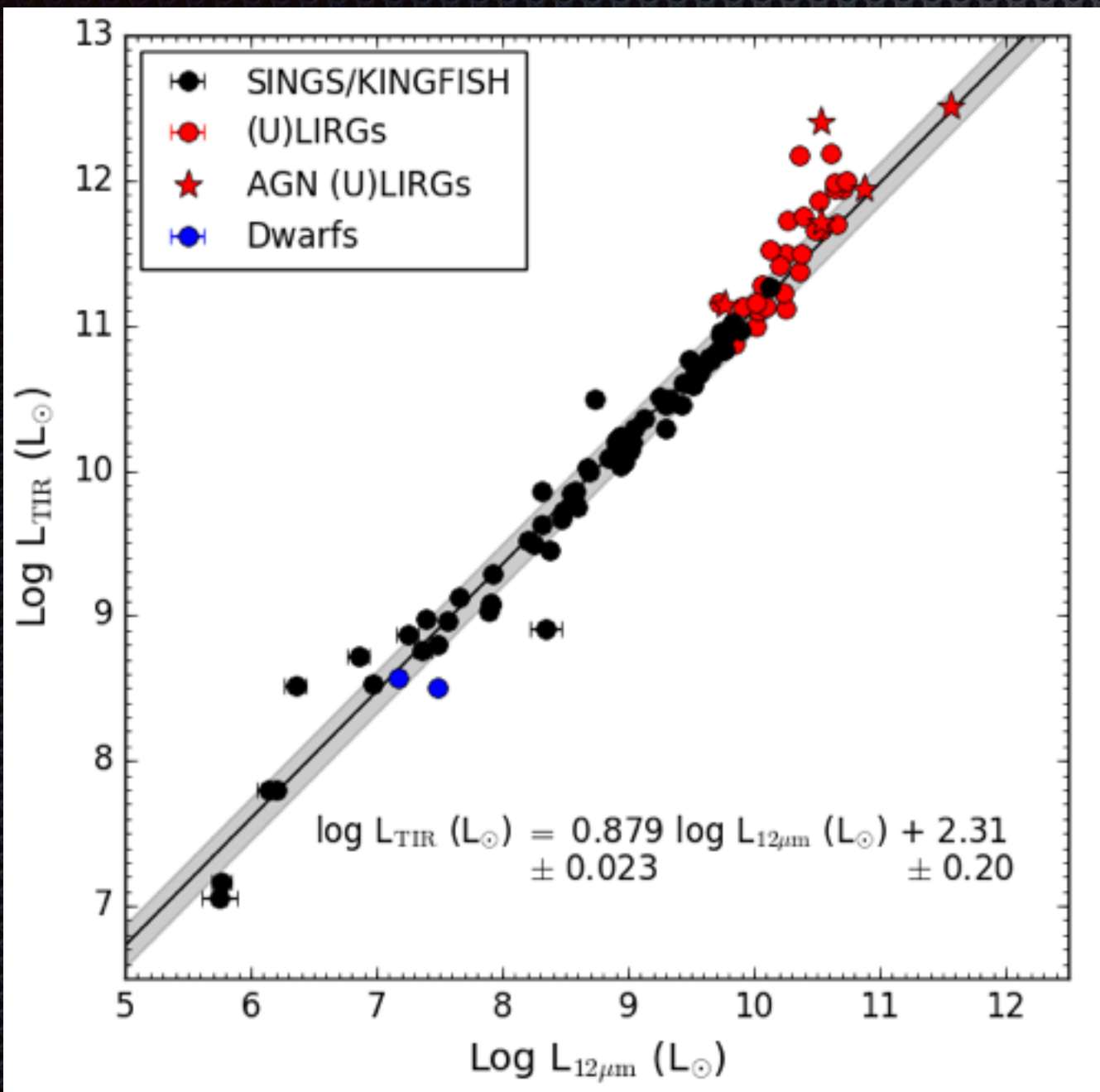
NGC 3351



NGC 1097

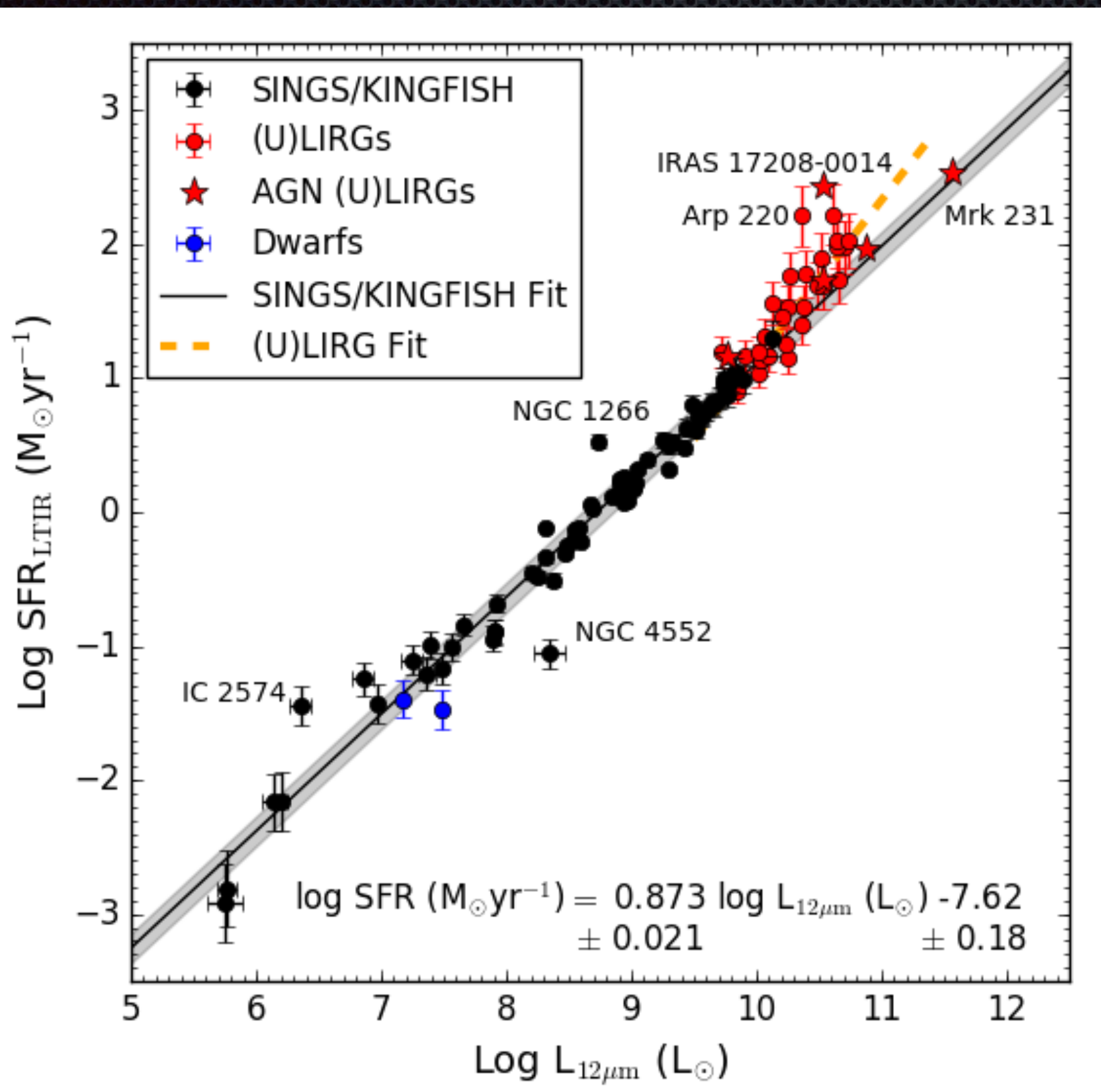


LTIR vs W3, W4

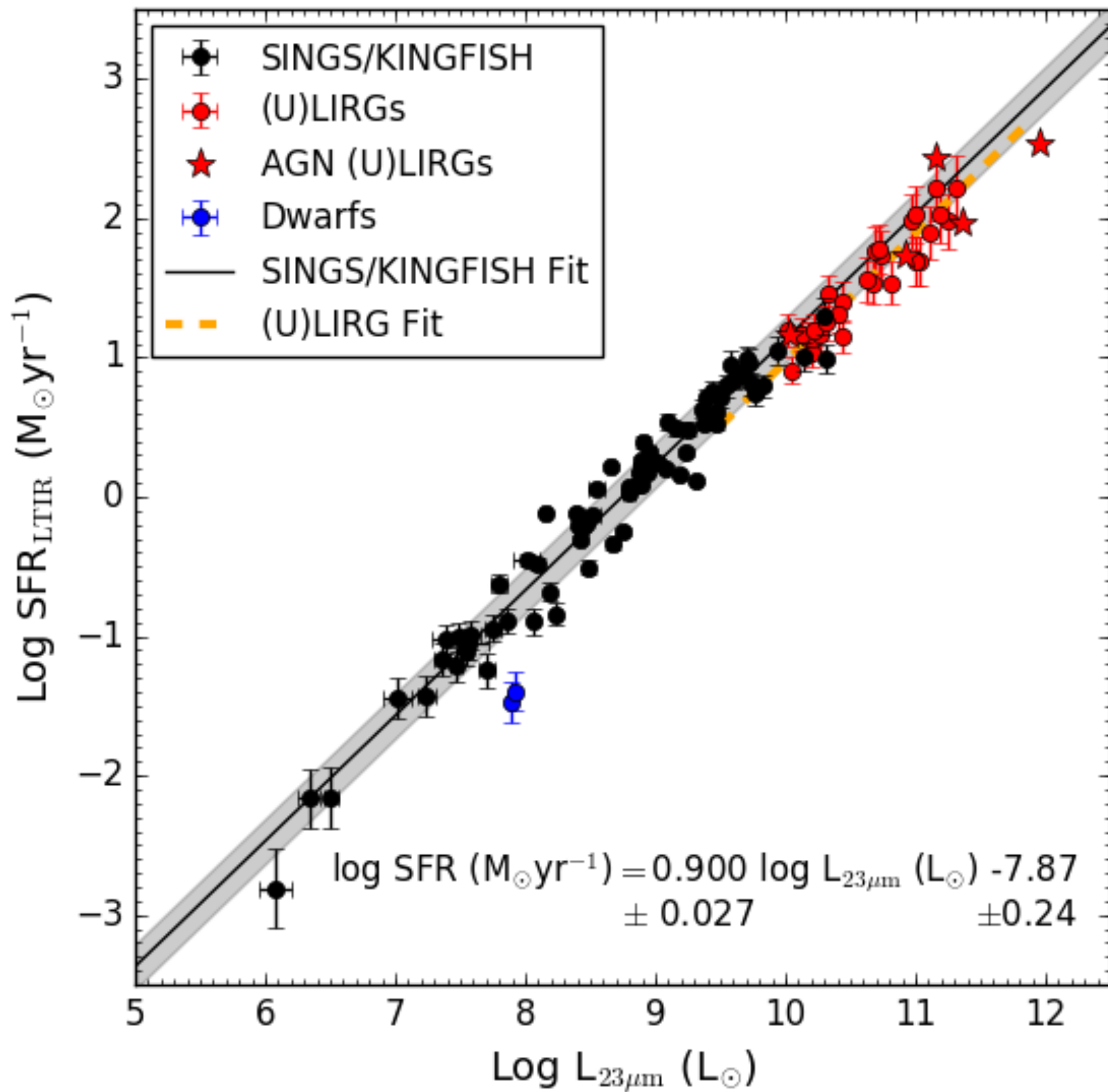


confirms IRAS result
Takeuchi et al. (2005)

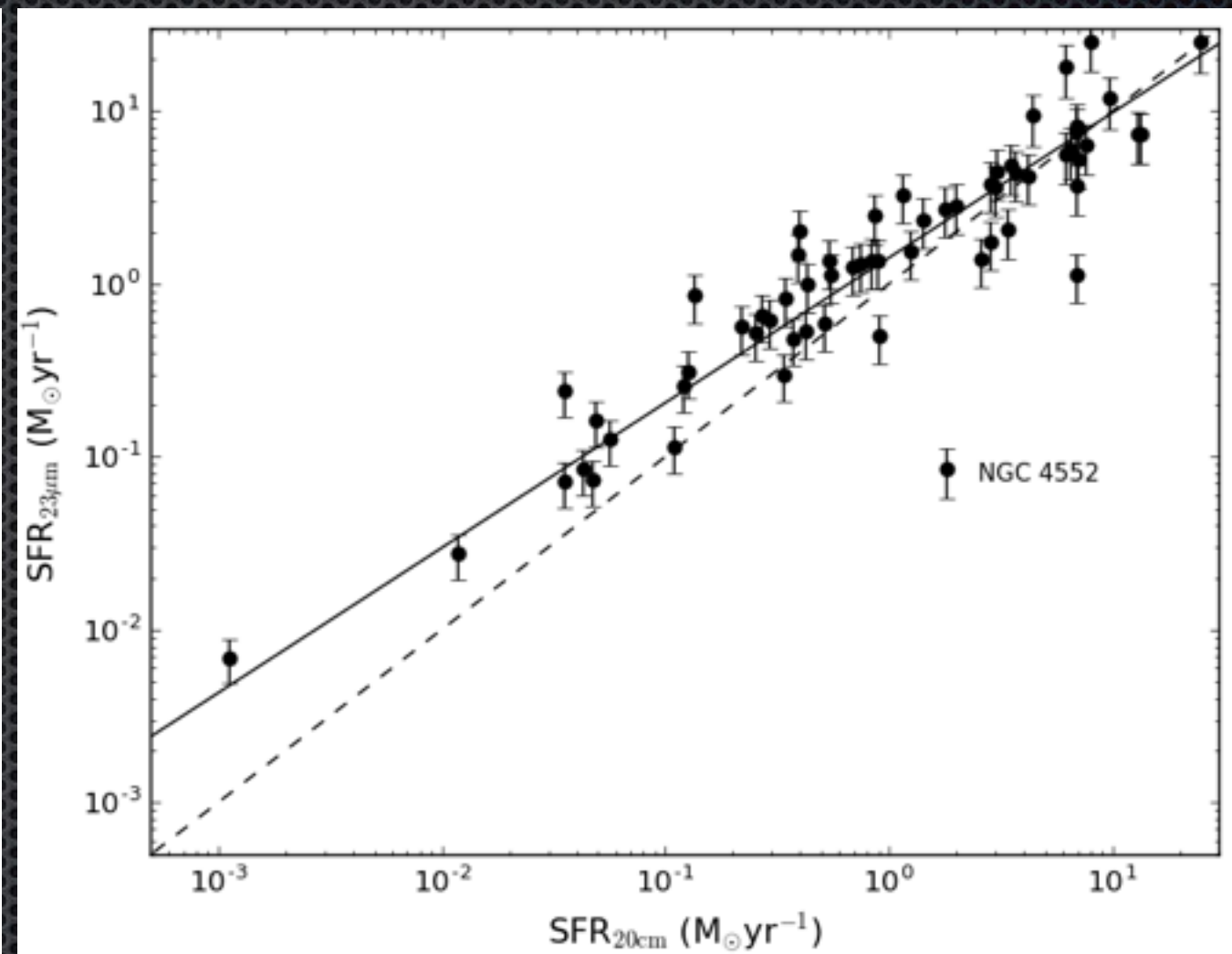
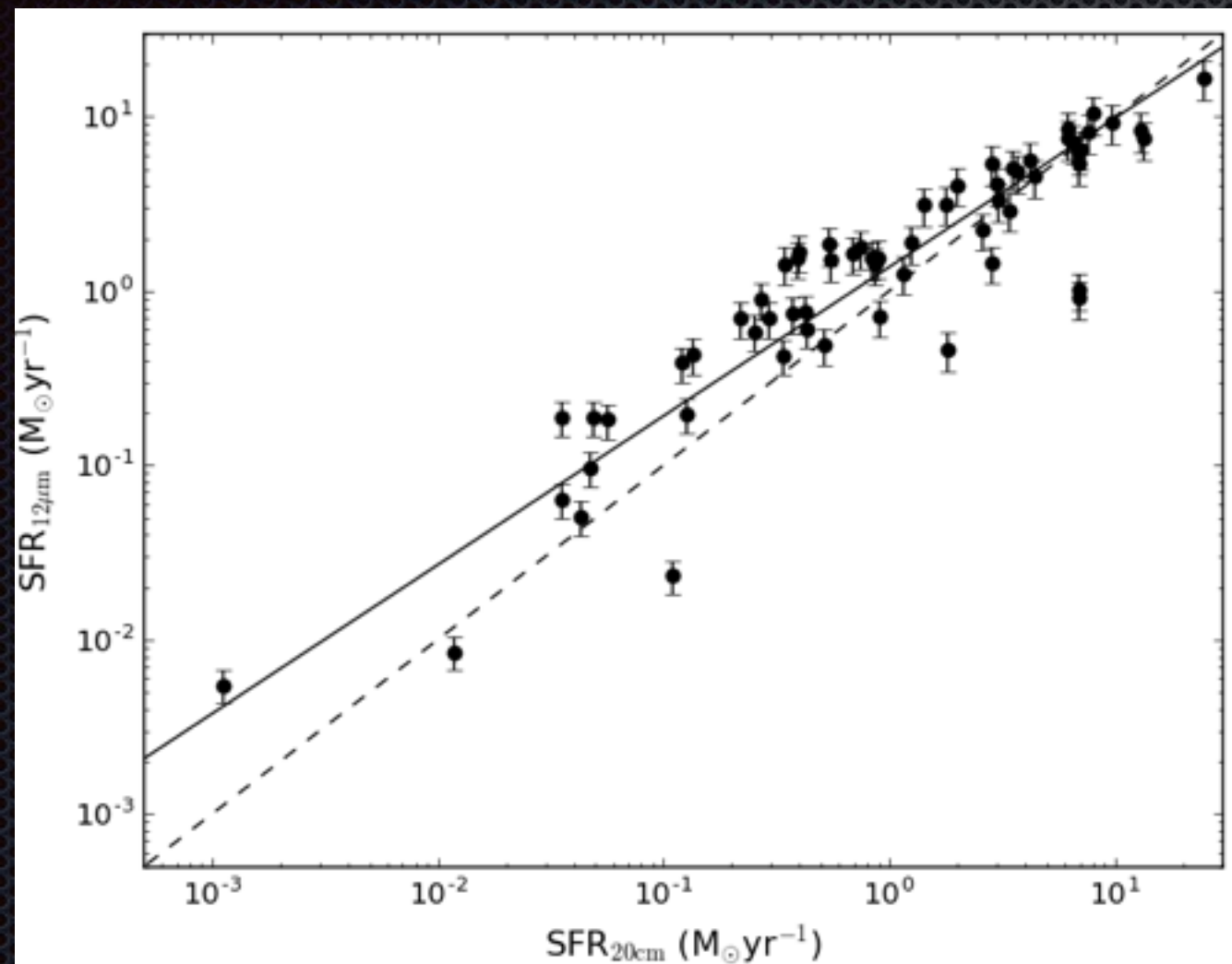
Cluver et al. (sub soon)



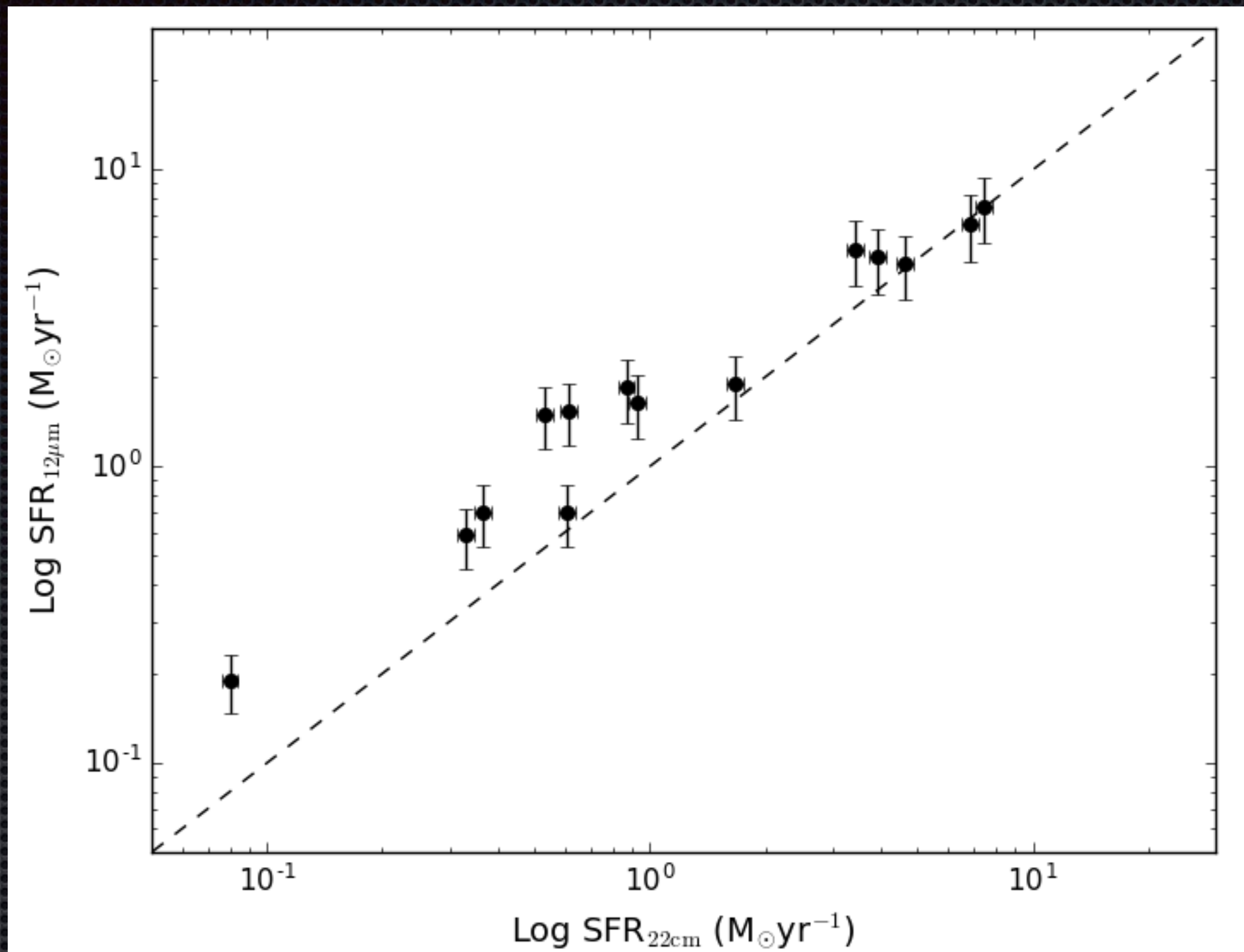
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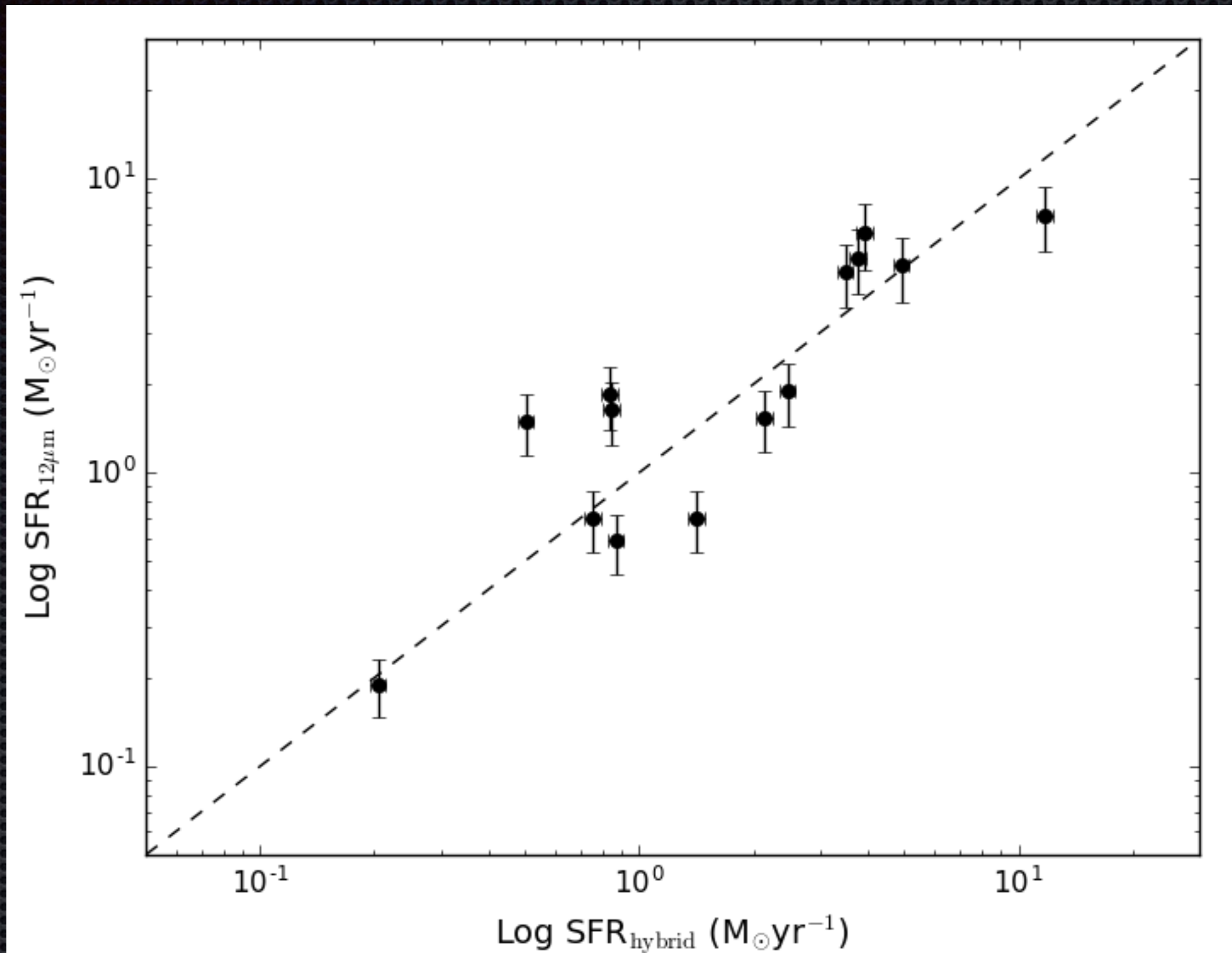
SFR comparison: WISE vs radio



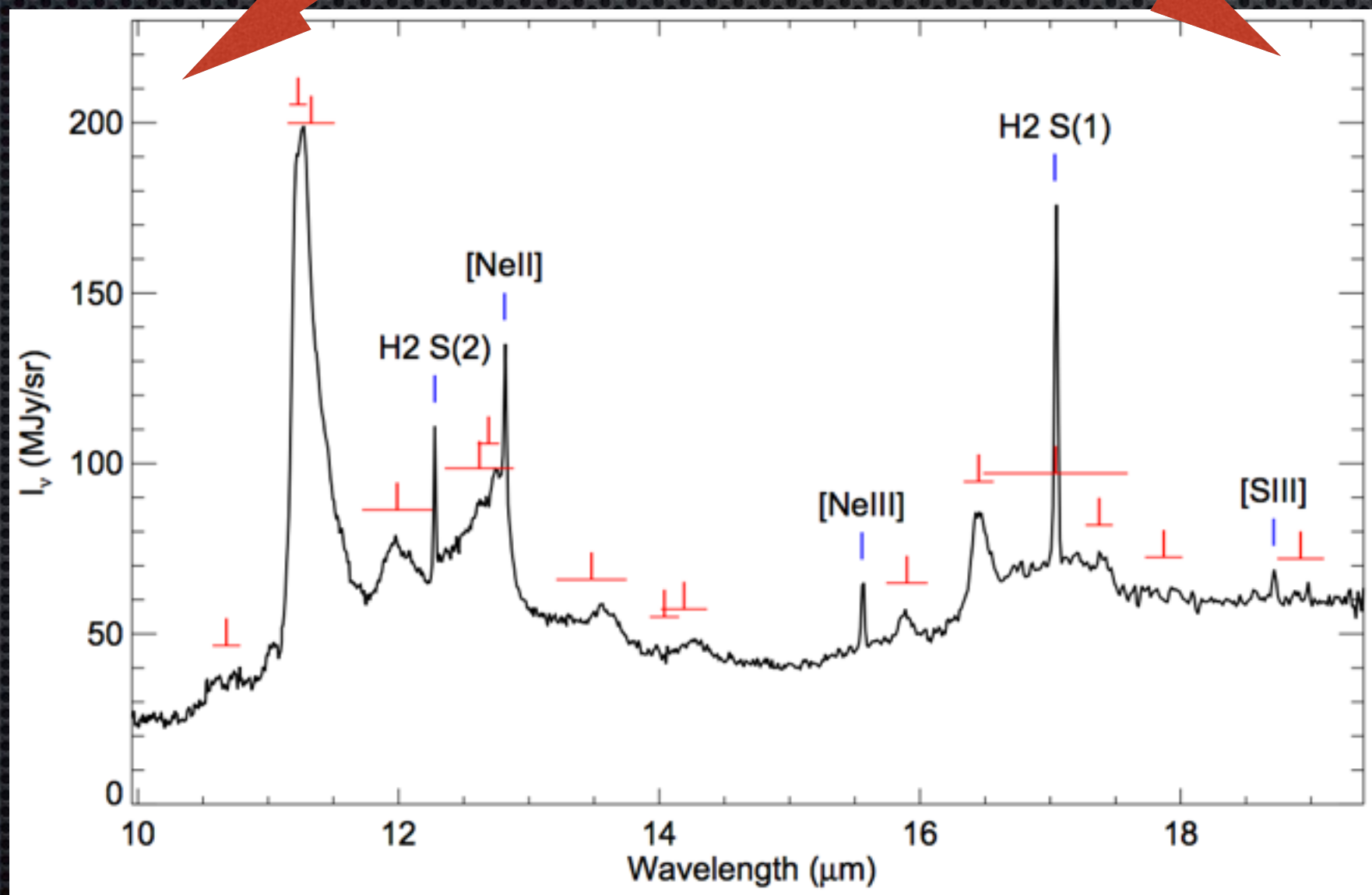
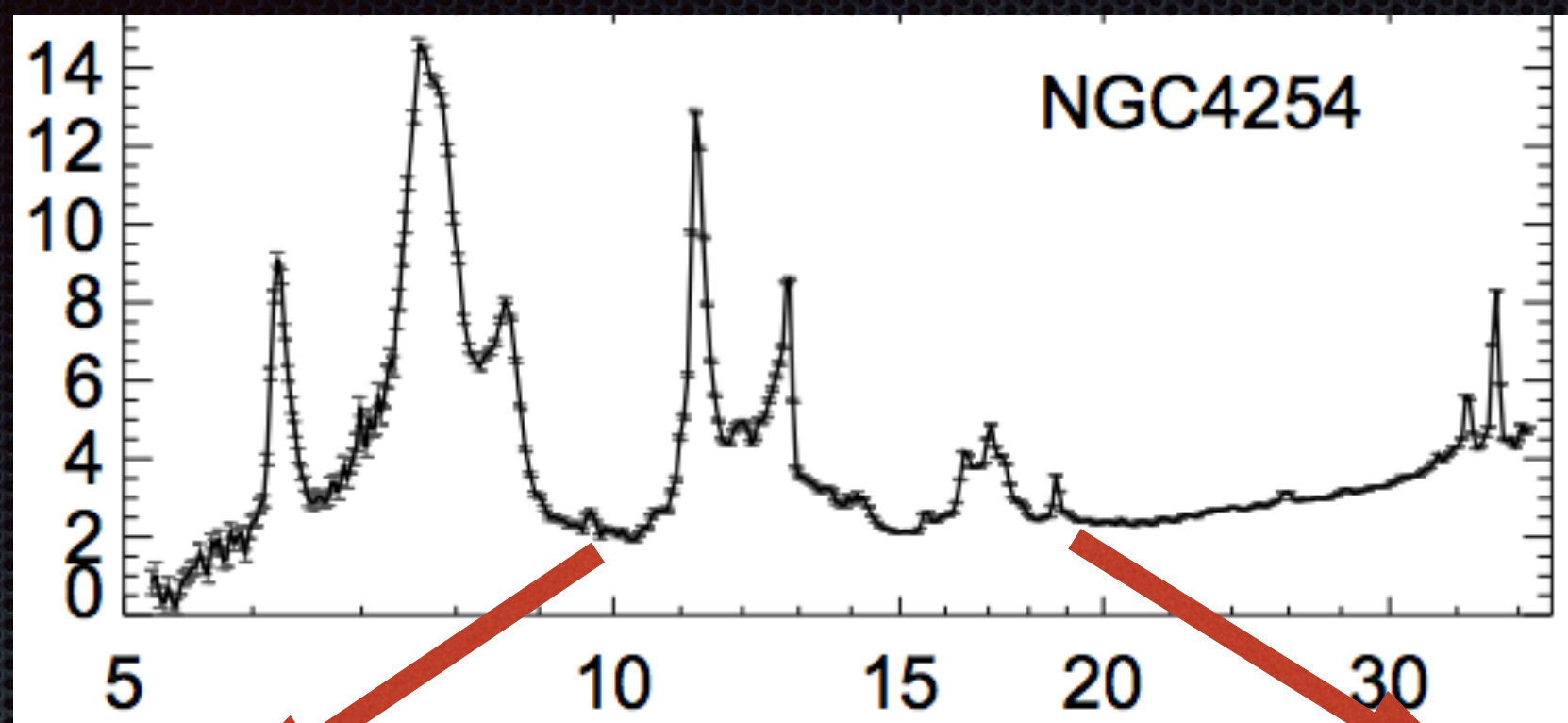
20cm From Dale et al. (2017)++
SFR: Murphy et al. (2011)



22cm WRST SINGS (Heesen et al. 2014)



FUV + $24\mu\text{m}$ WRST SINGS (Heesen et al. 2014)

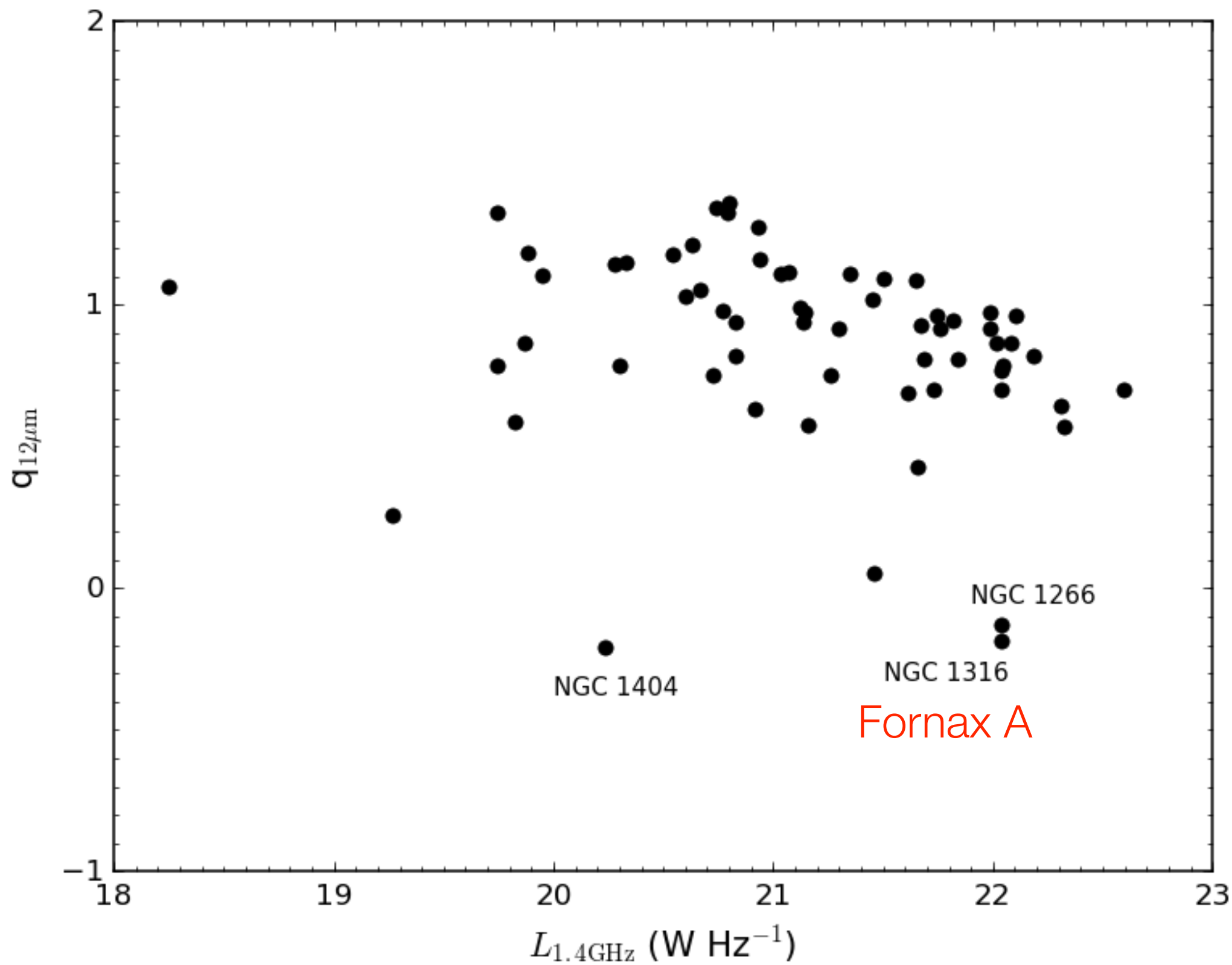


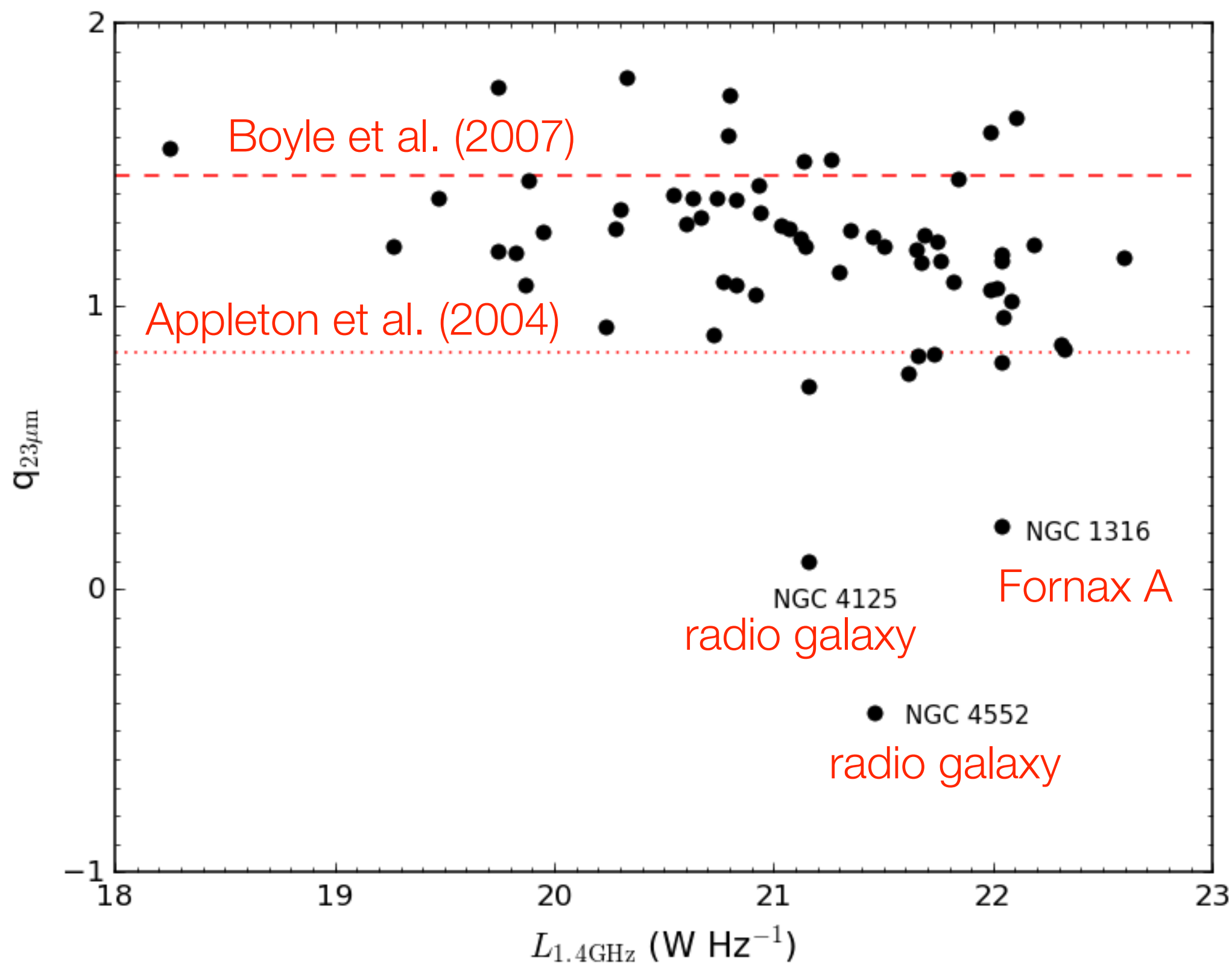
Smith et al. (2007)

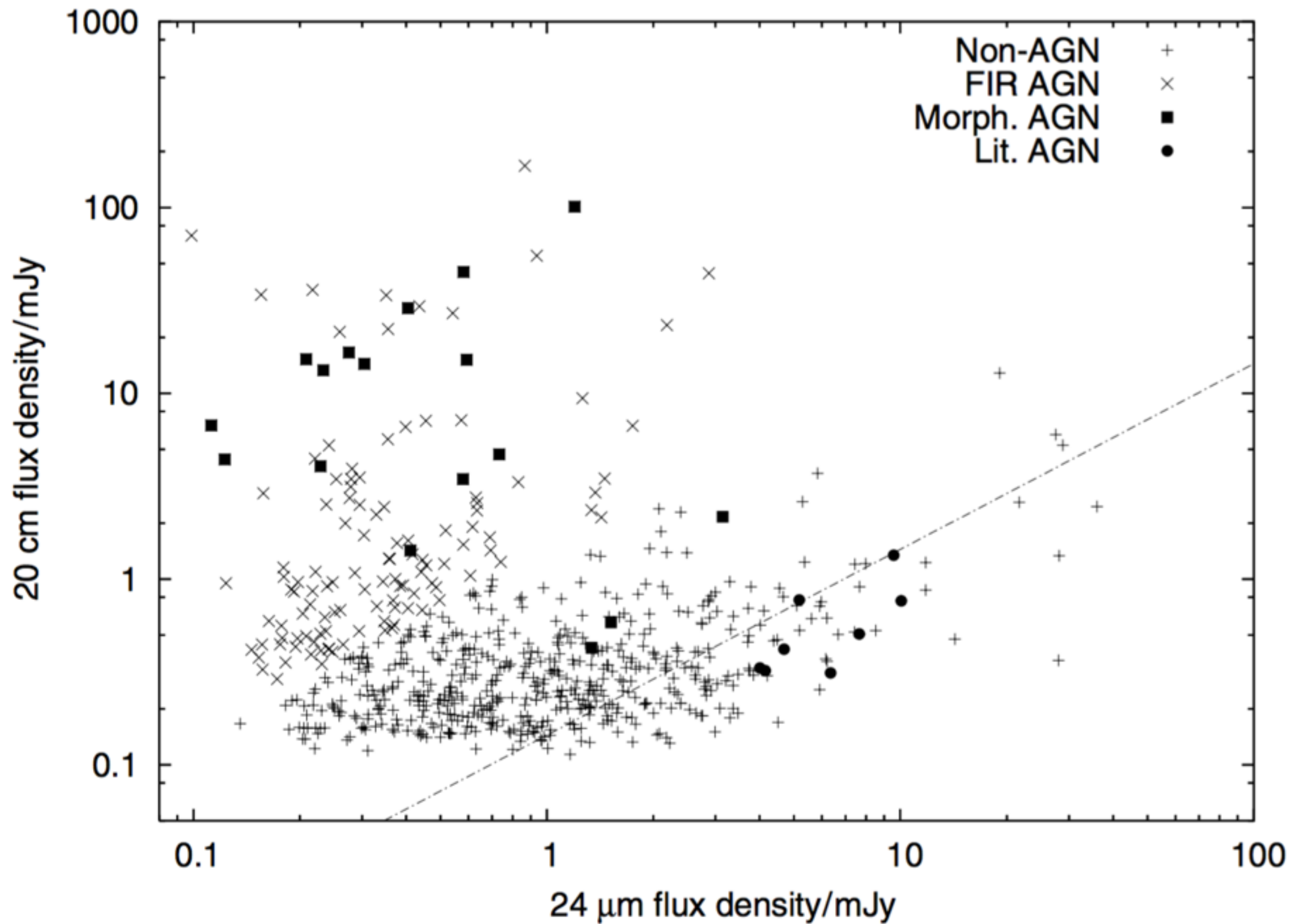
W3 unpacked

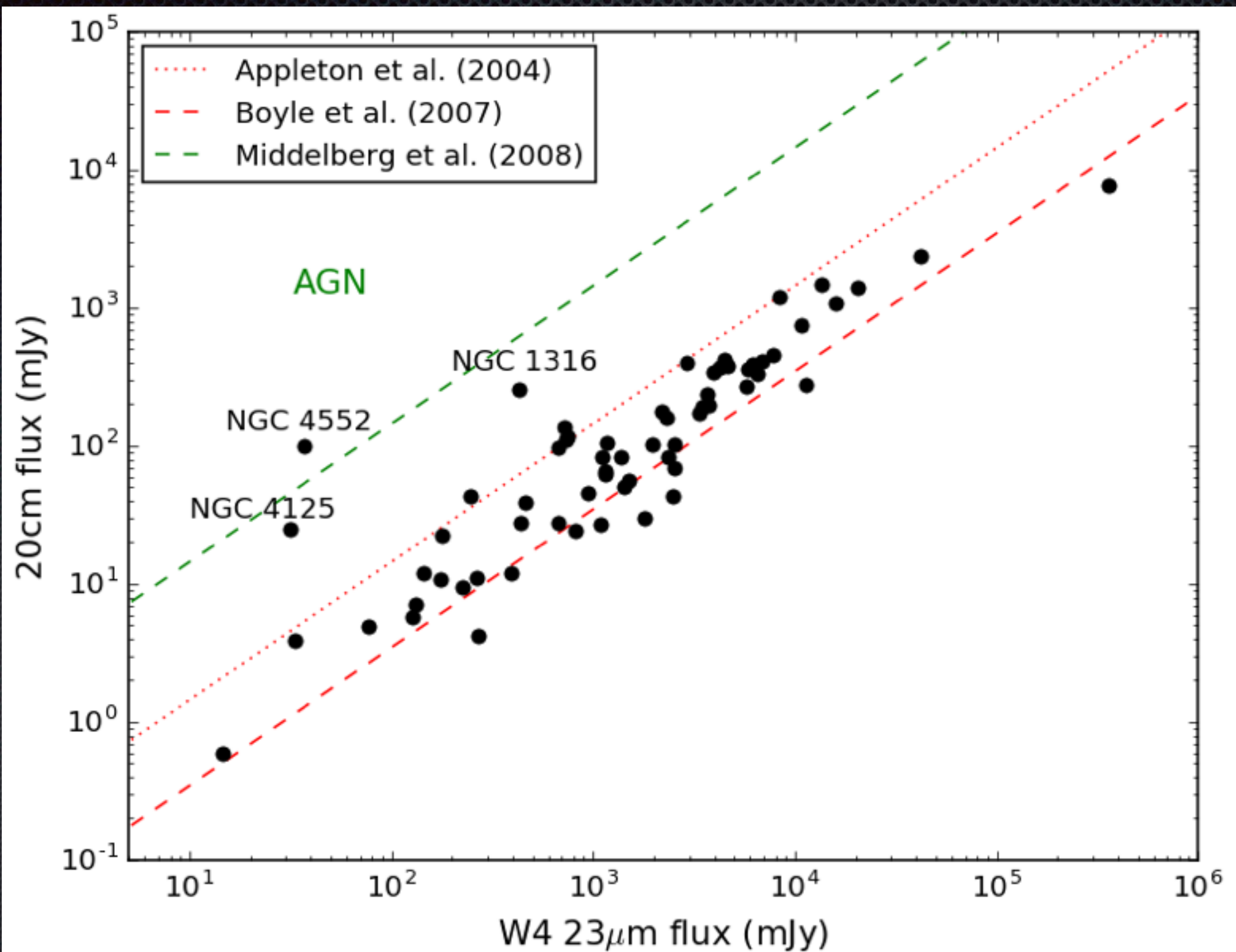
- ✦ 11.3 μm PAH, H_2 S(2), [NeII], [NeIII]
- ✦ silicate absorption
- ✦ Diamond-Static & Rieke (2012), Alonso-Herrero et al. (2014) $\rightarrow$ 11.3 μm PAH not significantly reduced around moderate luminosity AGN
- ✦ Shipley et al. (2014) $\rightarrow$ PAH $\approx$ H recombination
- ✦ Jensen et al. (2017) $\rightarrow$ 1 kph

$q = \log(12\mu\text{m}/20\text{cm})$









Much to be done here

