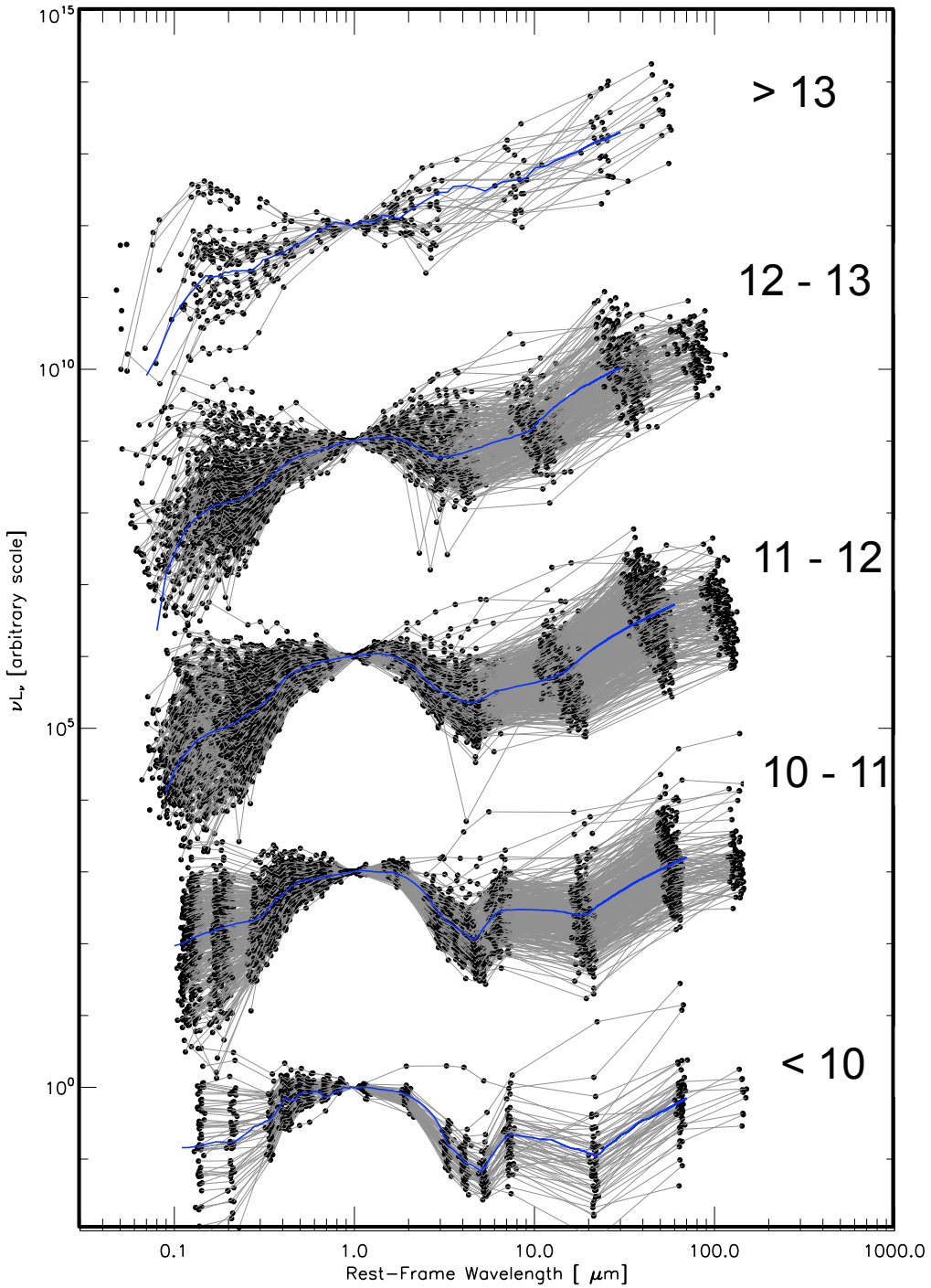
A Multiwavelength Study of 70 μm Selected Galaxies in the COSMOS Field

OR .....

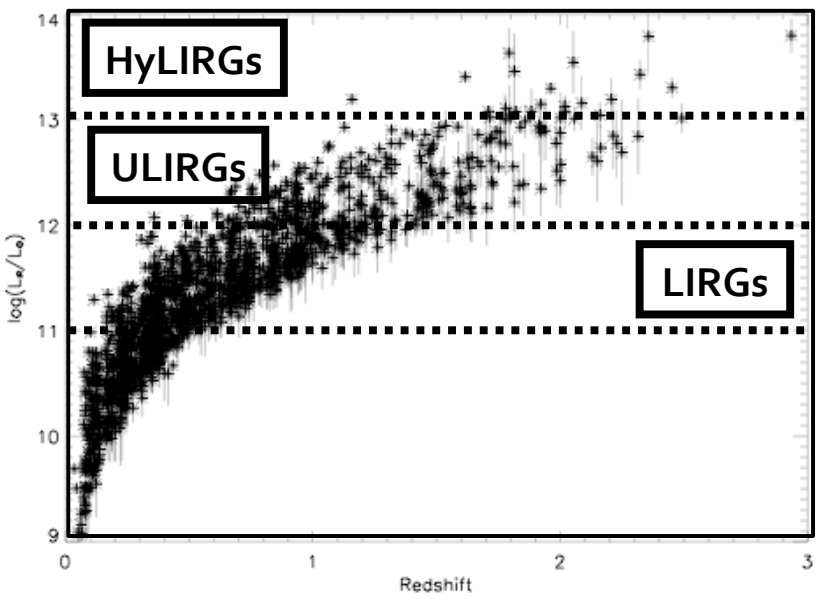
My Thesis in 5 Minutes!

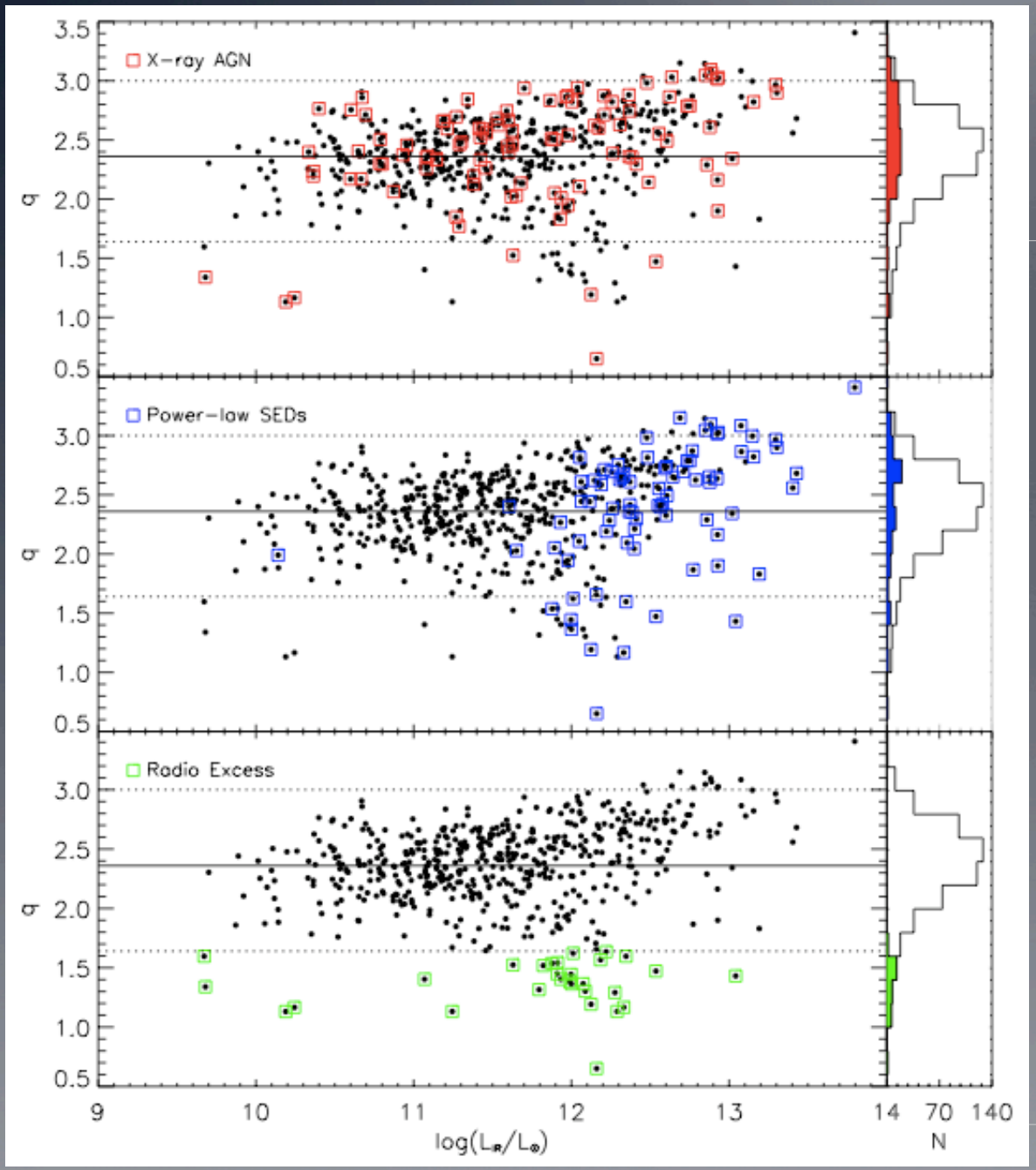
Jeyhan Kartaltepe + Dave Sanders, Emeric Le Floc'h, Dave Frayer, Herve Aussel, Stephane Arnouts, Olivier Ilbert, Mara Salvato, Nick Scoville, Jason Surace, Lin Yan + Many Others!



SEDs

- Wide range of spectral shapes
- Obtain L_{IR} by fitting various SED templates
- Overall dispersion in L_{IR} ~0.2 dex





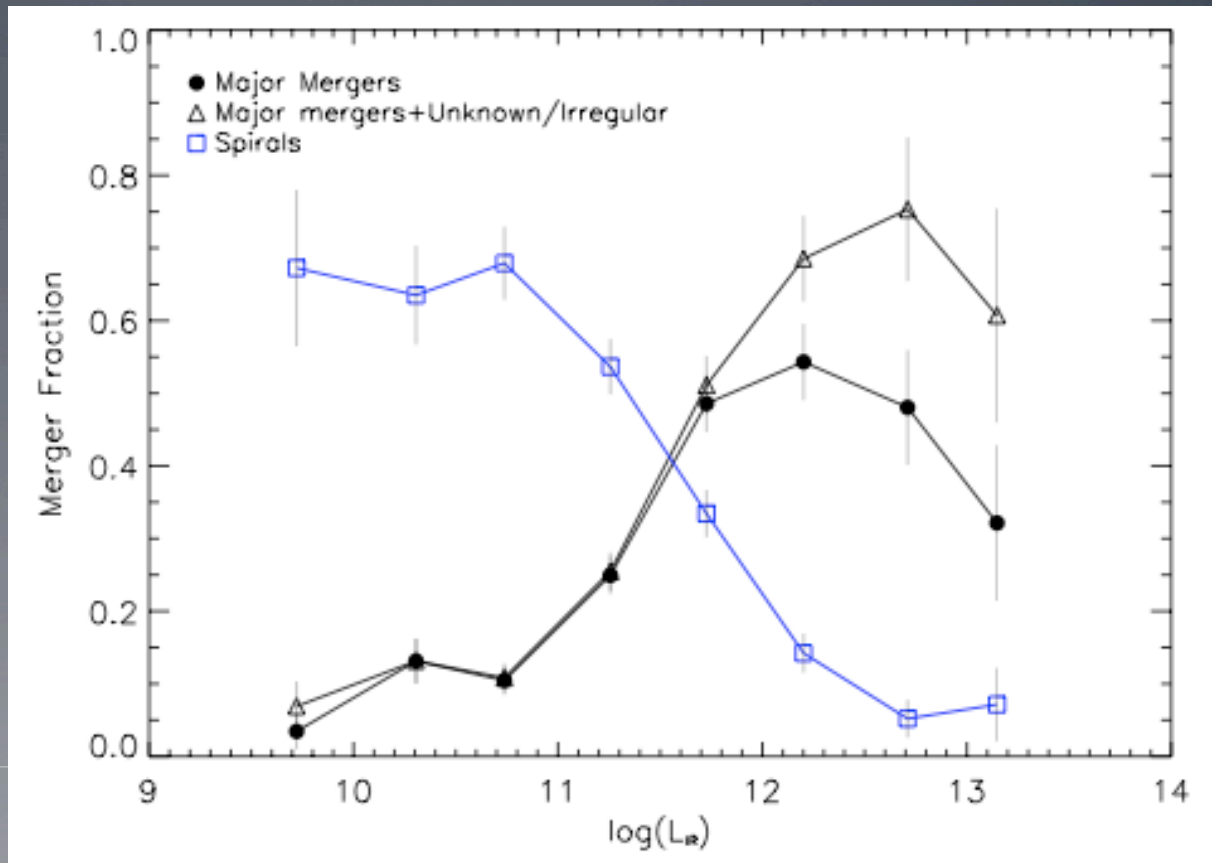
AGN

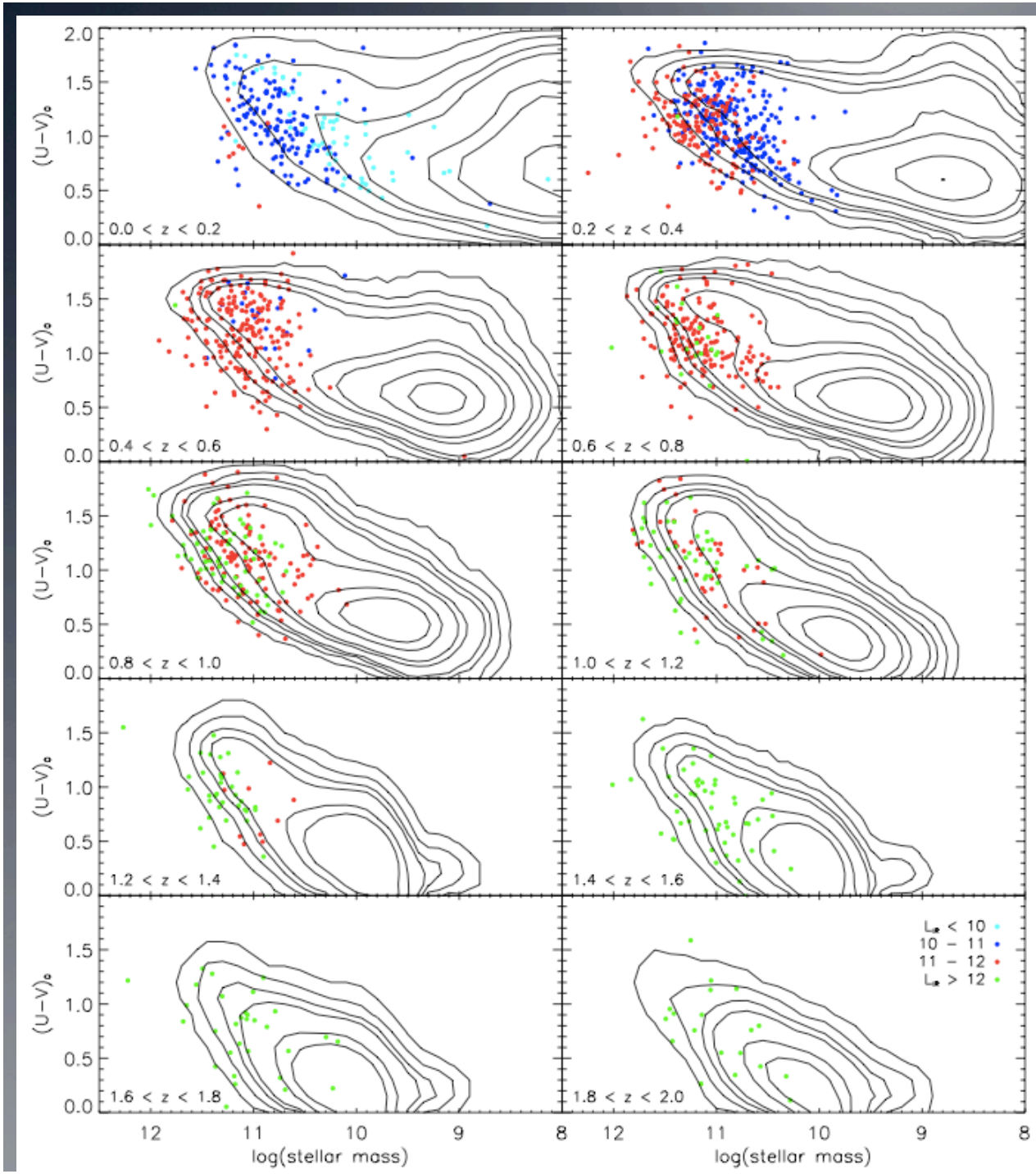
- 158 X-ray AGN
- 551 Radio sources
  - (105 X-ray)
- 155 Power Law SEDs
  - (46 X-ray)
- 248 satisfy Stern et al. 2005 IRAC color criteria
  - (87 X-ray, 100 PL)
- 29 "Radio Excess Sources"
  - (7 X-ray, 10 PL)

→ AGN Fraction increases strongly with L_{IR}

Morphological Classification

- Classified each galaxy visually into
  Spiral, Elliptical, Major or Minor merger, QSO, or Unknown





Color

- Sources lie in the Green Valley
- Correlate with morphology → major mergers peak most strongly

$L_{IR} < 10$
$10 - 11$
$11 - 12$
$L_{IR} > 12$

Conclusions

- 70 μm selection → excellent estimate of L_{IR}
  - Better than with 24 μm alone!
- Fraction of sources with powerful AGN increases with L_{IR}
  - > 70% of ULIRGs and 100% of HyLIRGs
- Merger fraction increases strongly with L_{IR}
- Sources peak in the green valley

Paper I: SEDs and Luminosities → on repository

Paper II: Morphology and colors (draft sent out soon)

Next Up: Spectroscopic properties….