A multiwavelength view of AGN evolution

ZFIRE Meeting
September 26, 2014

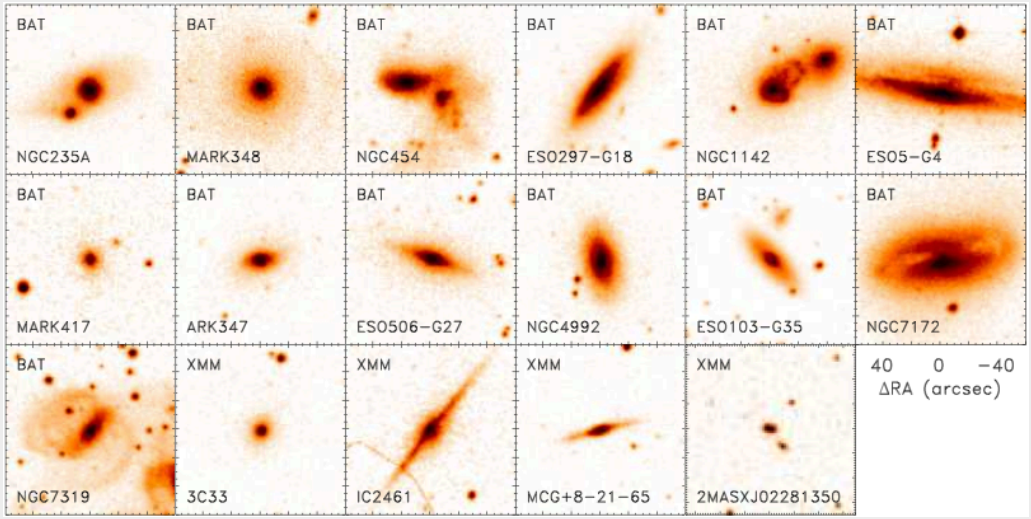
Michael Cowley

ZFOURGE
FourStar Galaxy Evolution Survey

MACQUARIE UNIVERSITY

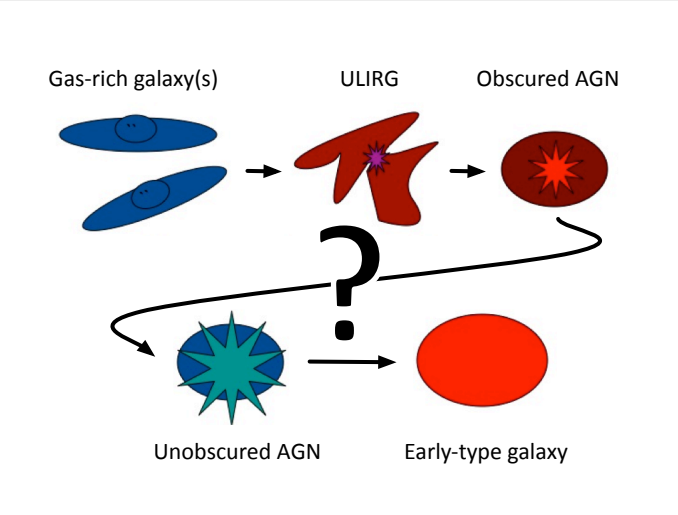
PRIMARY GOALS

To identify and catalogue AGN via a multiwavelength approach over a broad redshift range (i.e. 0 < z < 4)



Hönig et al. (2013)

To study the co-evolution of AGN and galaxies over the last 12 Gyr of cosmic time

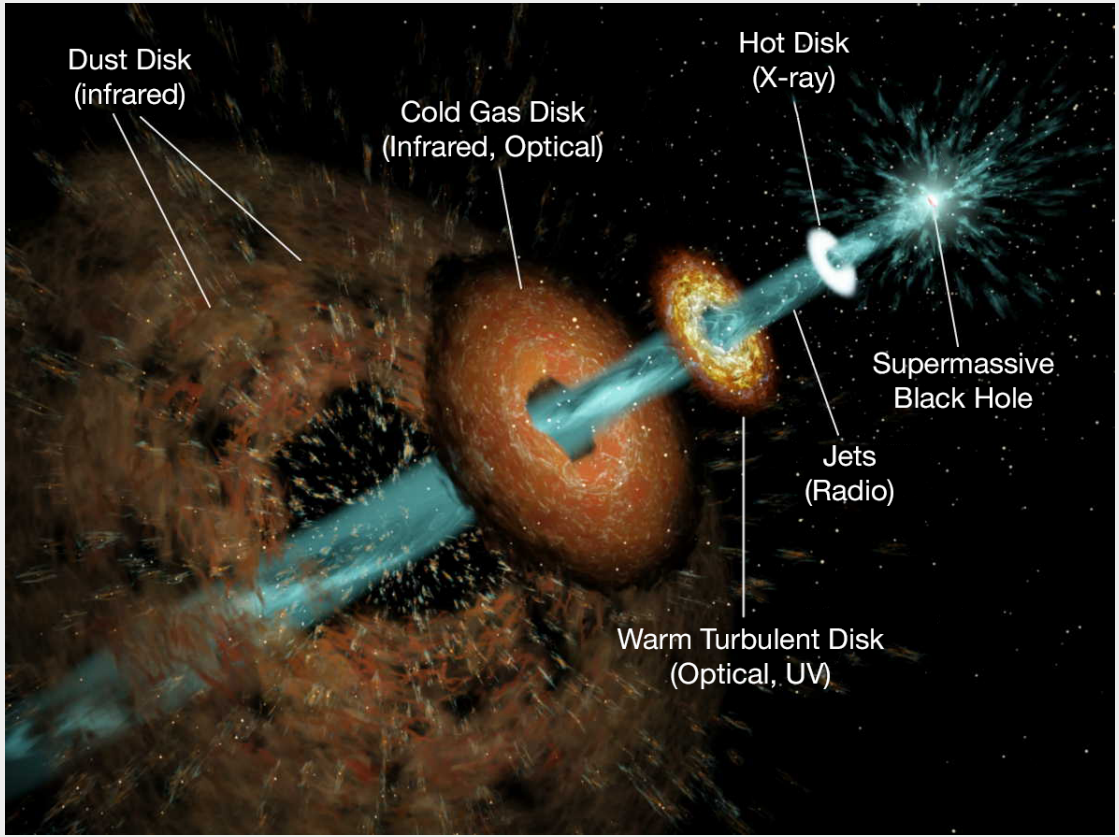


Adapted from Hickox et al. (2009)

WHY MULTIWAVELENGTH?

AGNs are an extremely complex phenomena and emit over the entire electromag spectrum.

A multiwavelength approach allows detection while removing selection effects and observational biases AND identify different types: obscured, unobscured, radio-loud sources etc.

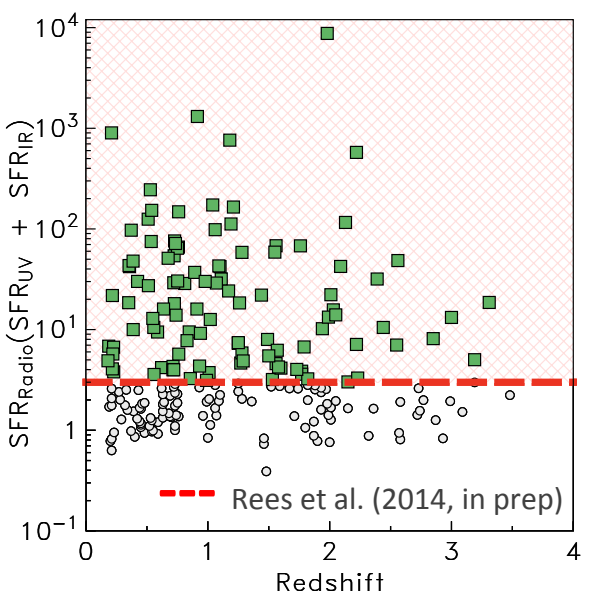


http://www.iaa.es/~jlgomez/Jose_L._Gomez/Animations.html

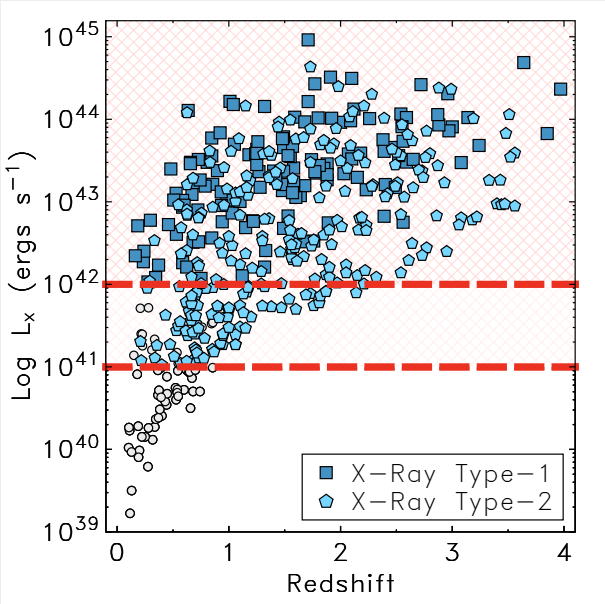
IDENTIFYING AGN IN ZFOURGE

3 FIELD: COSMOS, GOODS-S & UDS

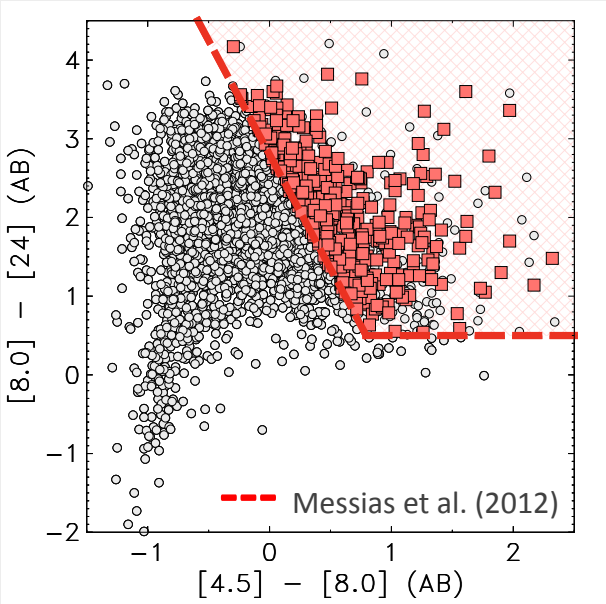
3 REGIMES: RADIO, X-RAY & INFRARED



Radio AGN



X-ray AGN



Infrared AGN

Cowley et al. (2014, in prep)

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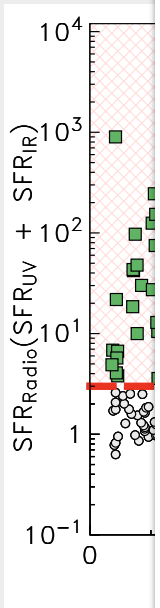

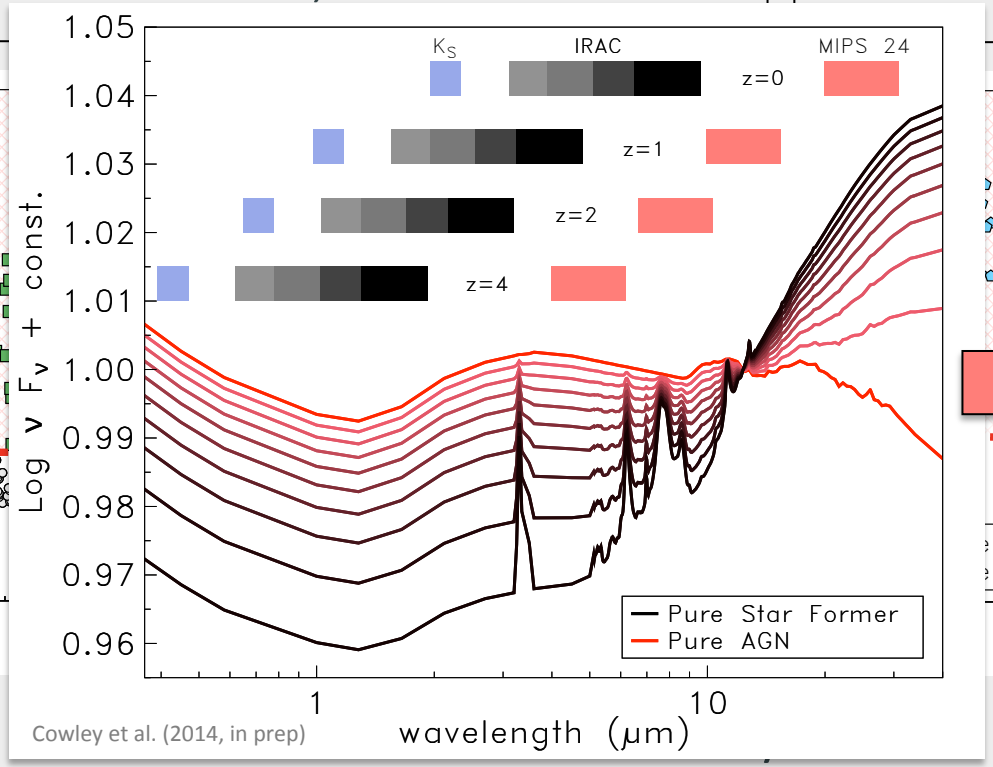

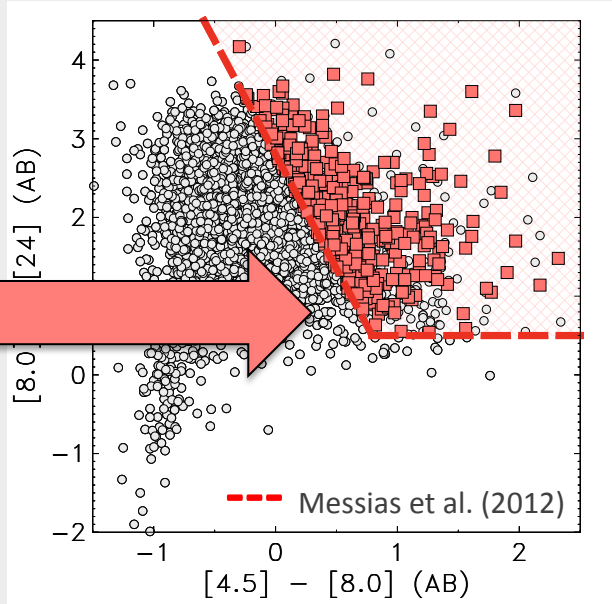

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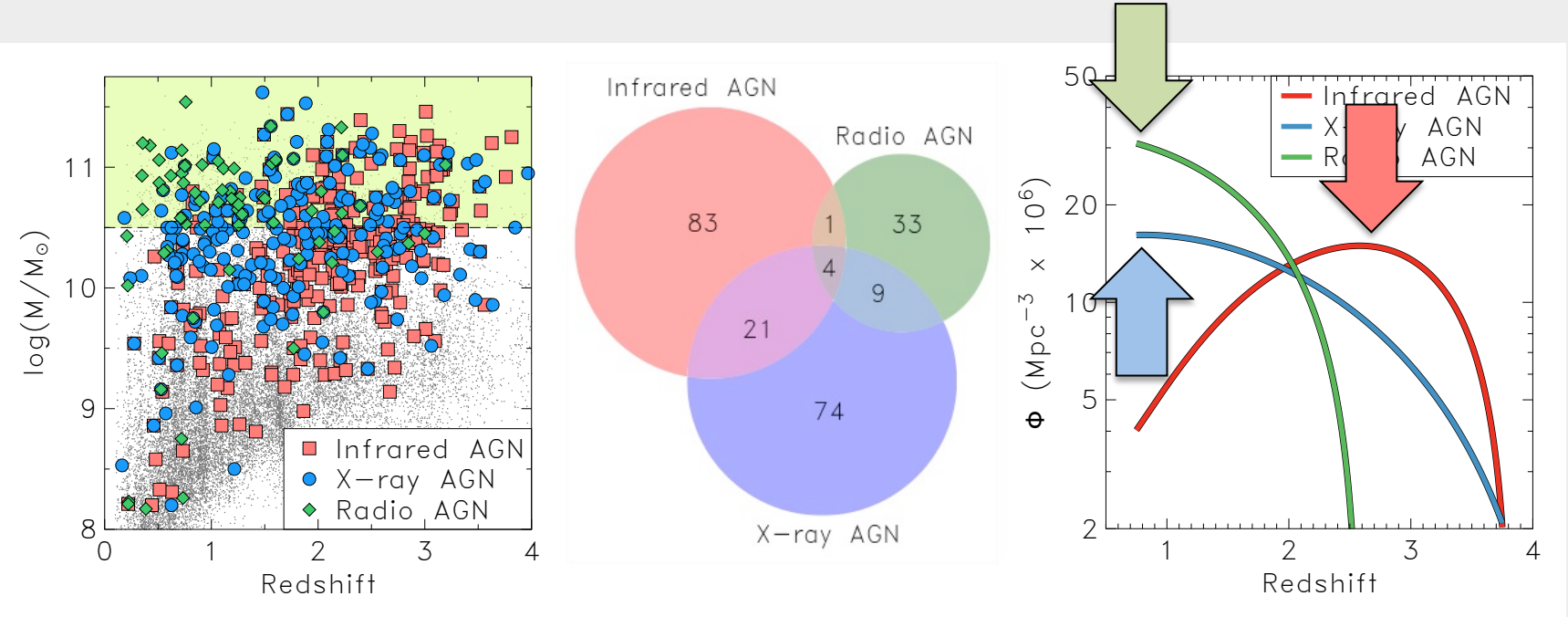
INTERIM RESULTS
AGN IN MASSIVE GALAXIES



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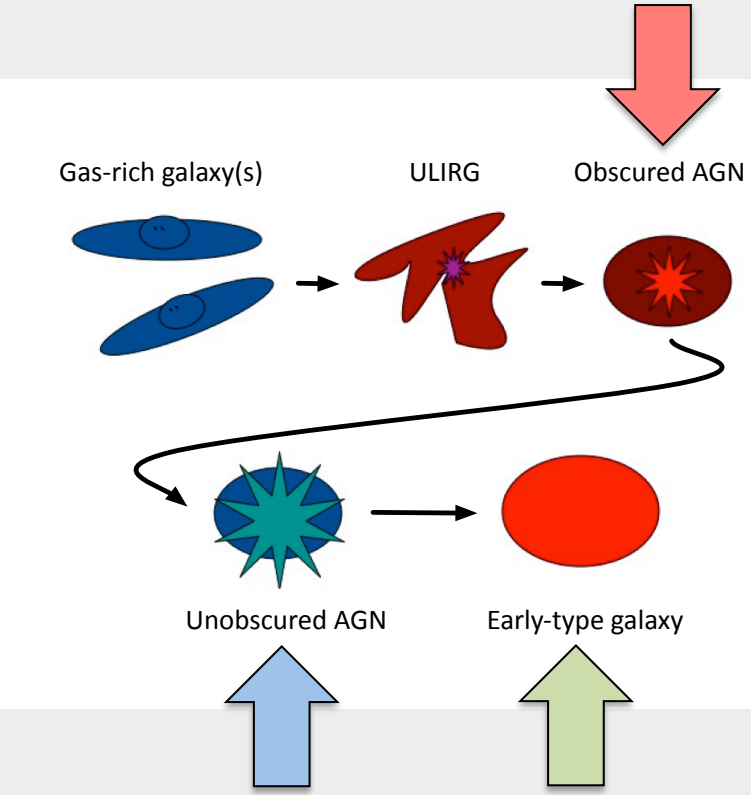

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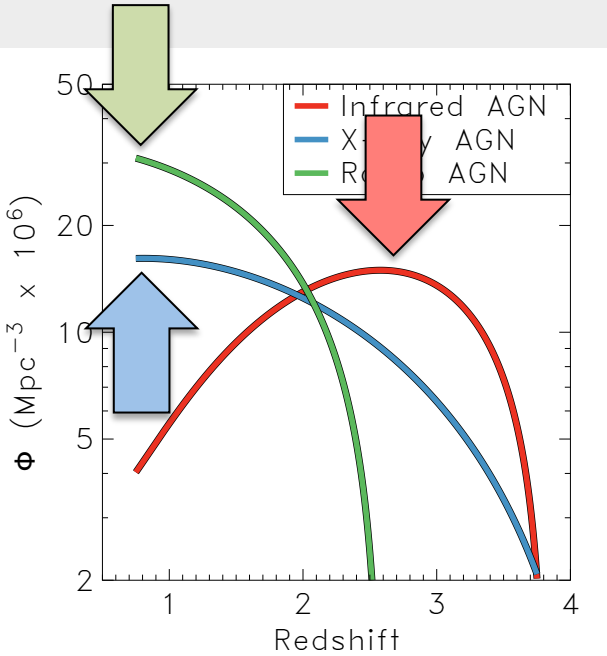

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AGN IN CLUSTERS

Offers an opportunity to study:

(1) the coevolution of AGN and galaxies from a different environment

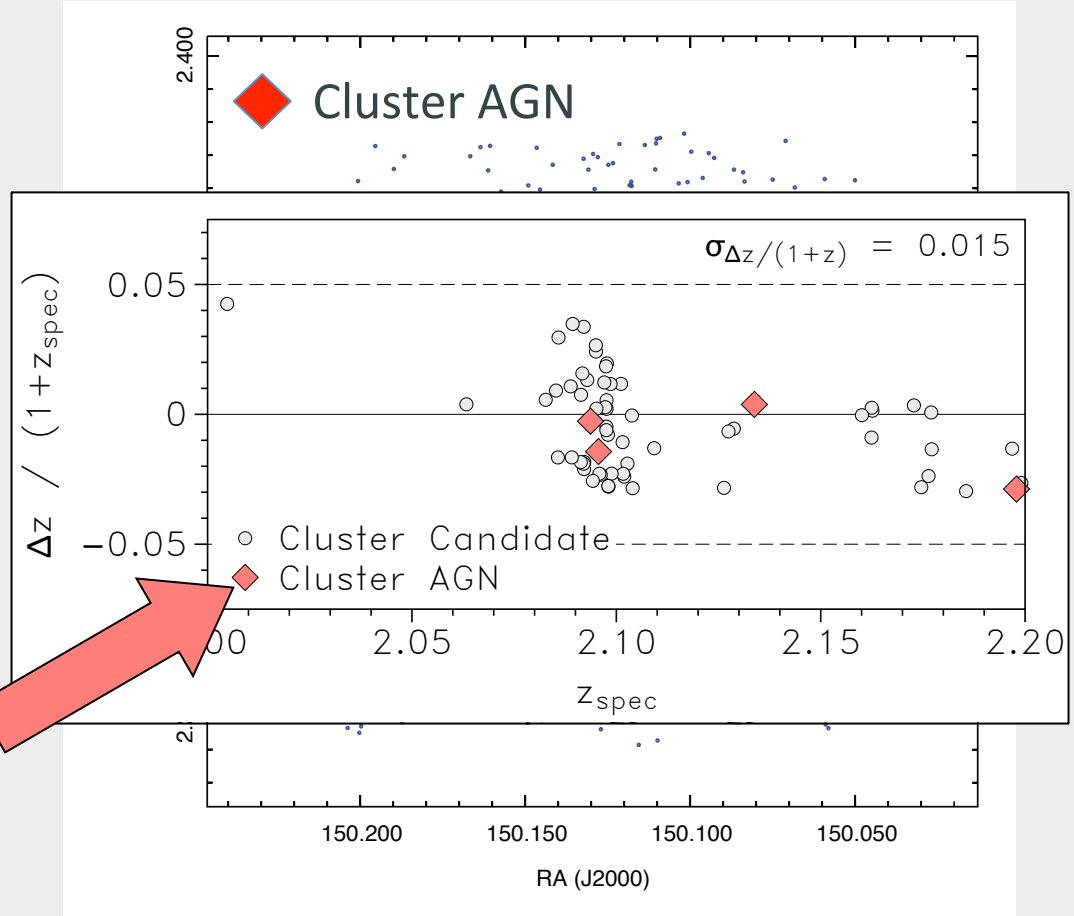
(2) the AGN fuelling process

(3) the role of AGN feedback in heating the intracluster medium

ZFOURGE
COSMOS CLUSTER

Cluster Candidate Field

- 8 x 1' regions
- 2.0 < z < 2.2
- 143 cluster galaxies
- 2x radio, 2x X-ray, 9x IR AGN
- 11 total AGN
- AGN fraction of 7.7%
- 4 AGN w/ MOSFIRE spectra



Data from Yuan et al. (2014, in prep)

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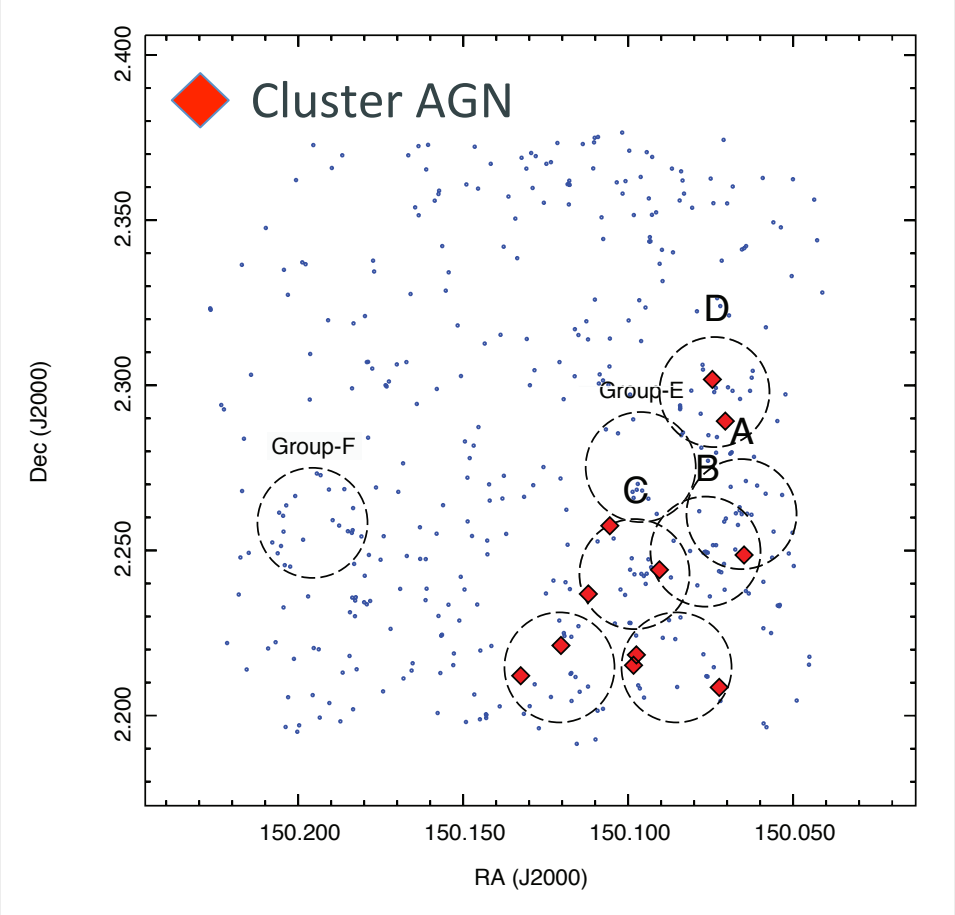

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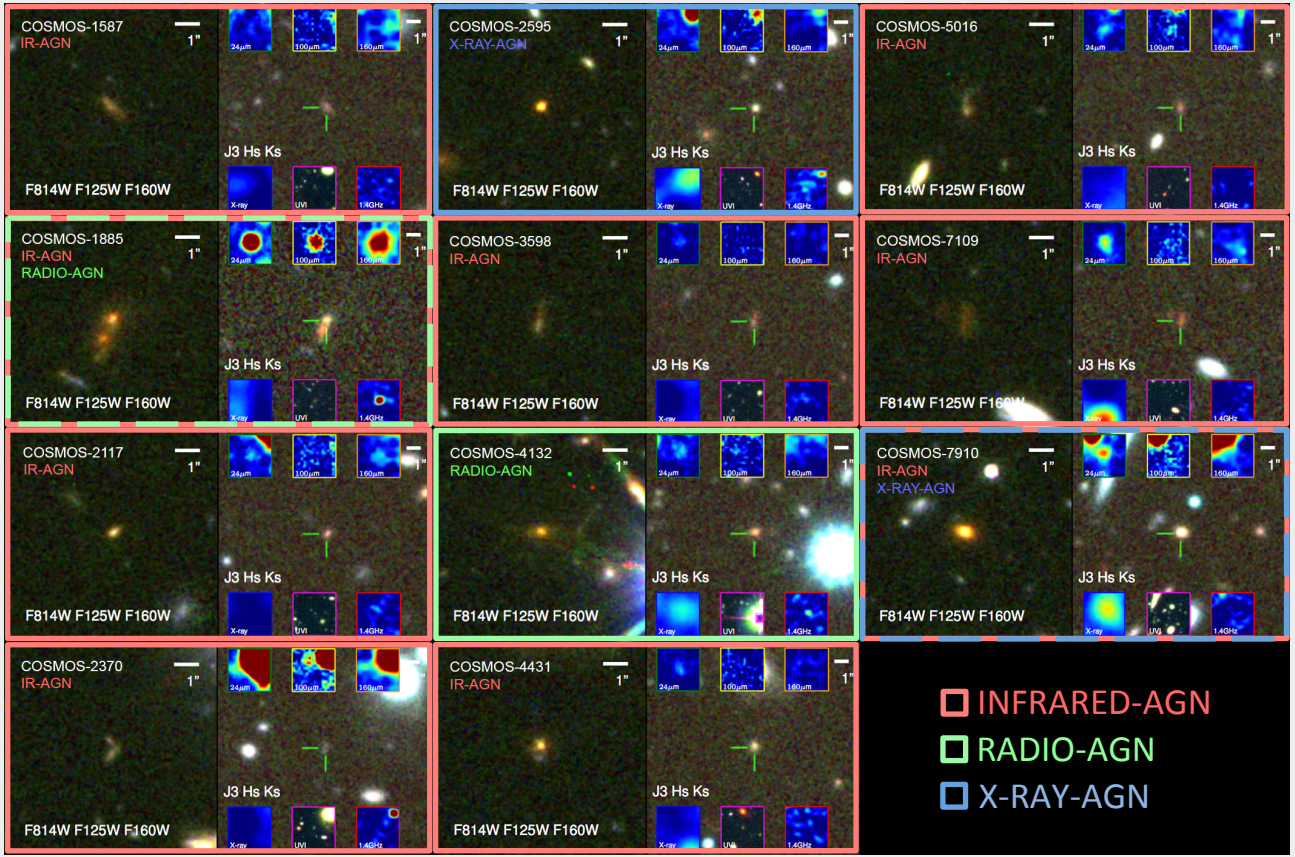


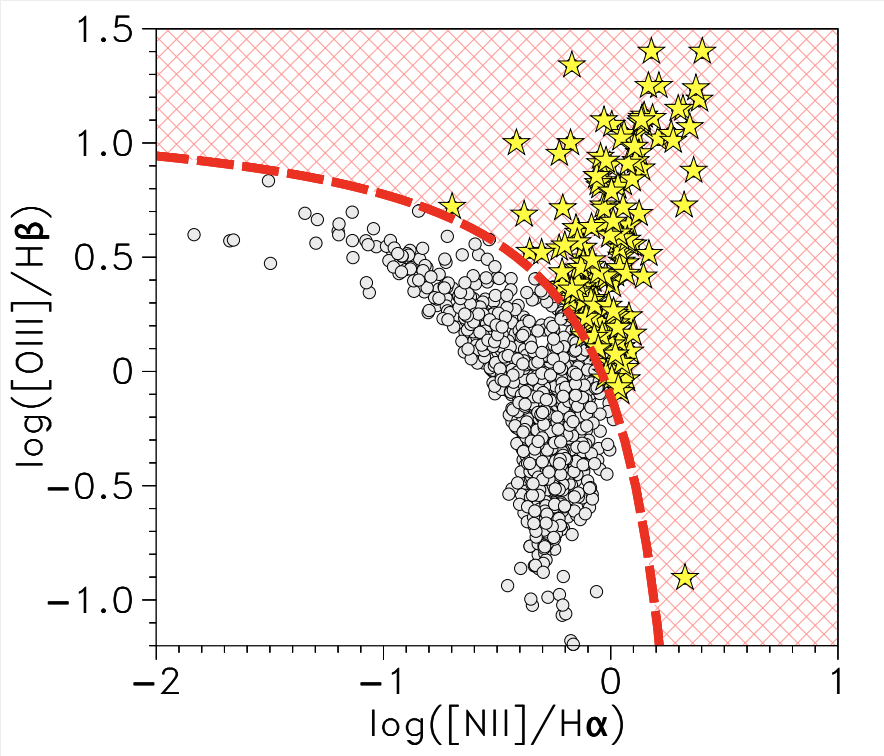
SPECTROSCOPIC FOLLOW-UP

Spectroscopic information will help:

(1) Extend AGN catalogue

(2) Confirm AGN nature of candidates

(3) Help inform theoretical classification schemes



BPT diagram (Baldwin et al. 1981) w/ classification boundary of Kewley et al. (2001)