Comparison of clusters/groups detected in XXL and GAMA

P.Giles, B, Maughan, A. Robotham, S. McGee, M. Gillone, T. Ponman

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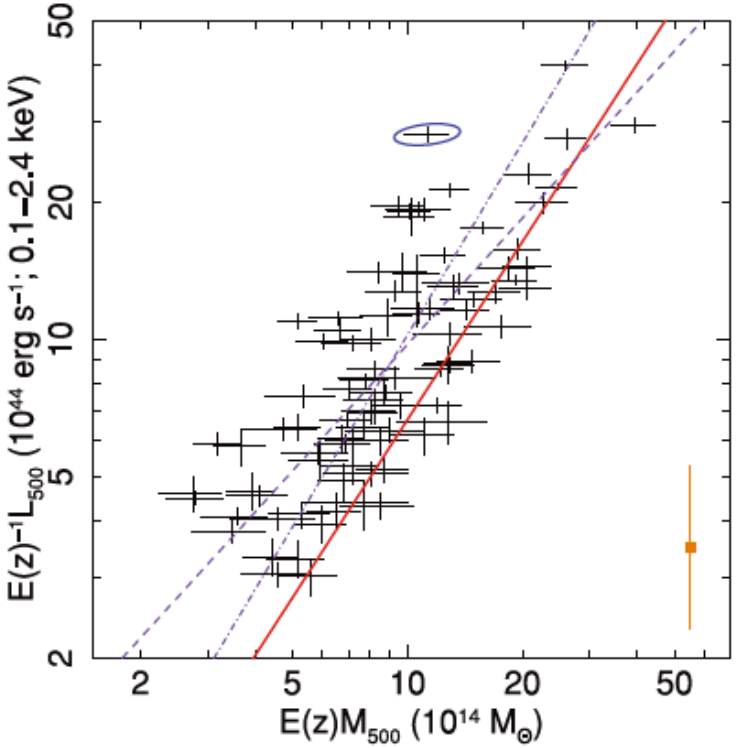
Preliminary

Outline

- Introduction
- The XXL and GAMA surveys
- Constructing complete cluster samples
- Comparison of scaling relations
- Summary

Introduction

- X-ray selected cluster samples suffer from biases, whereby for a given mass, brighter clusters are easier to detect
- Selecting clusters at other wavelengths provides insight into other selection effects
- Stacking allows for the investigation of scaling relations down to low mass



Mantz+ 10

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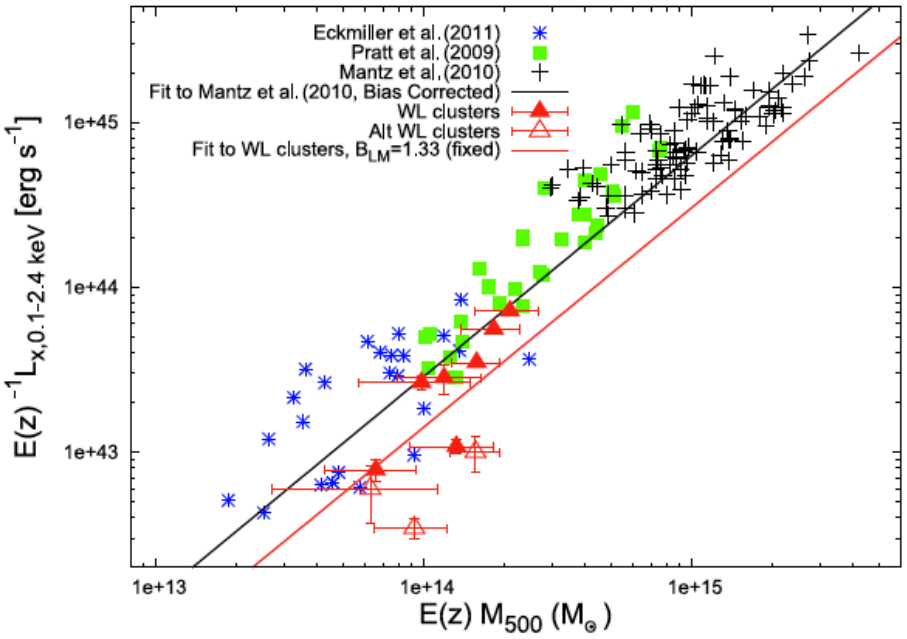

Giles+ 15

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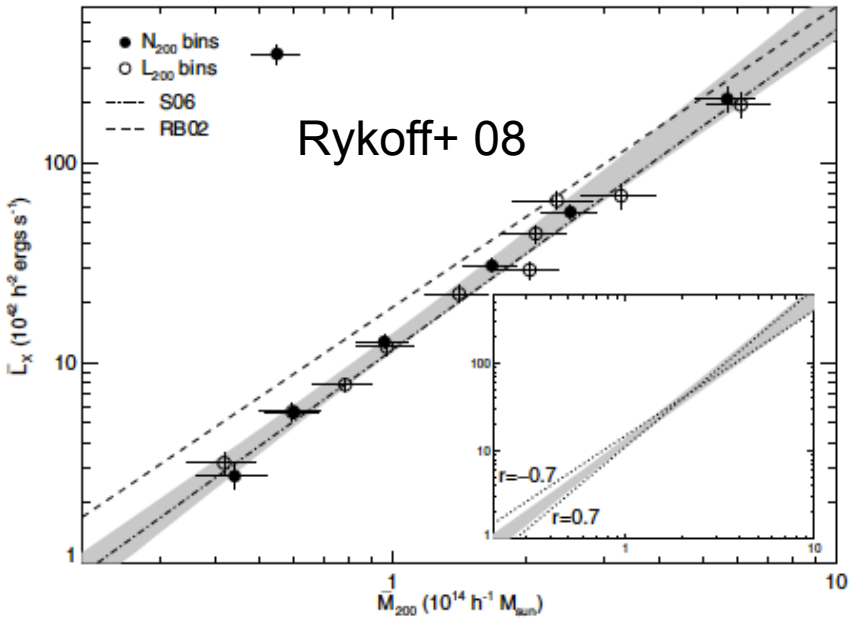

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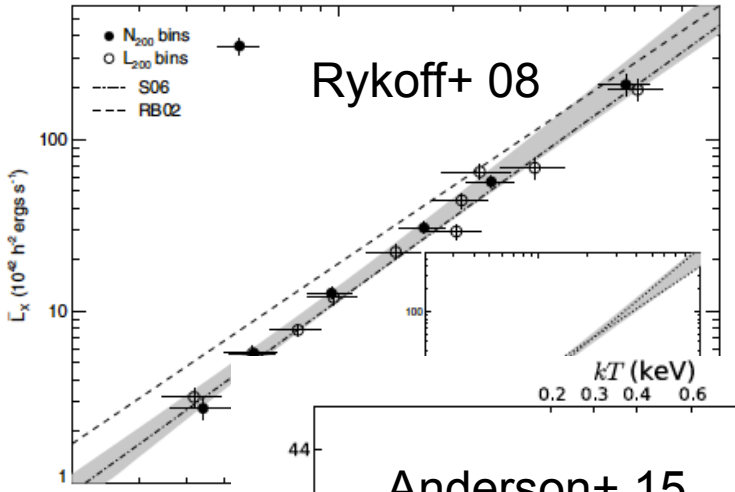
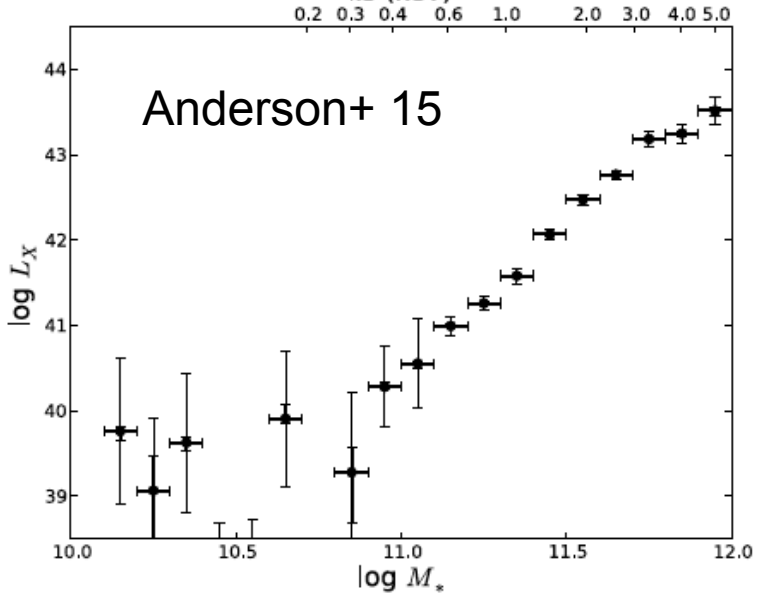
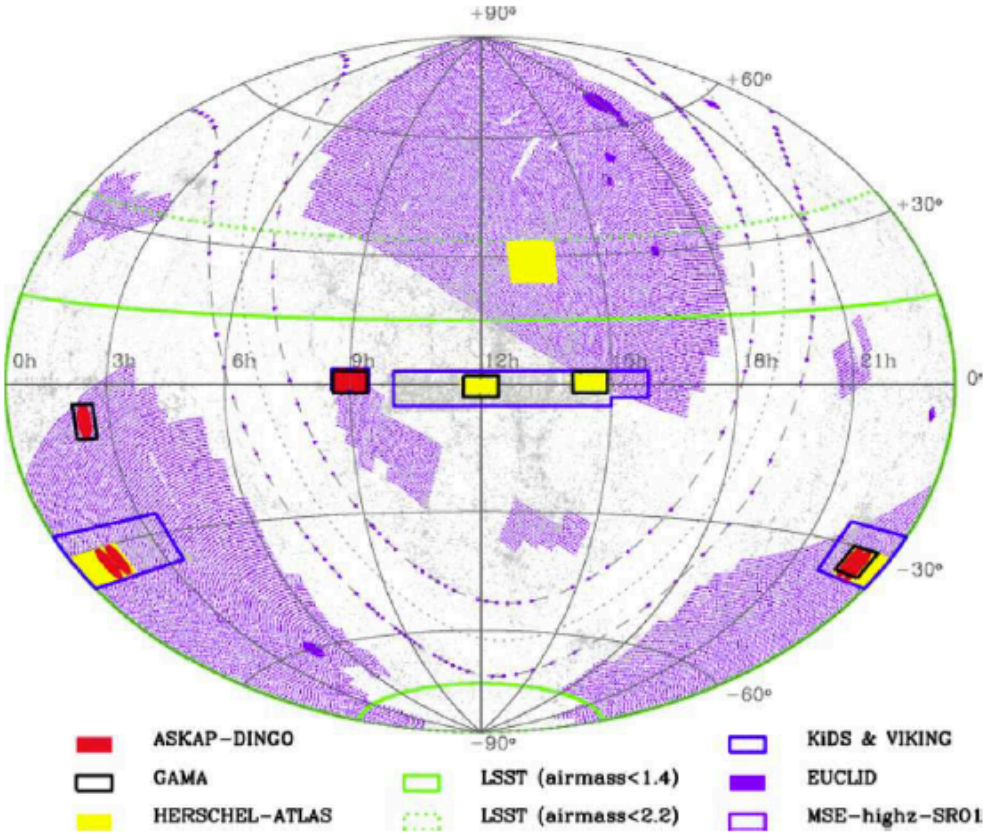




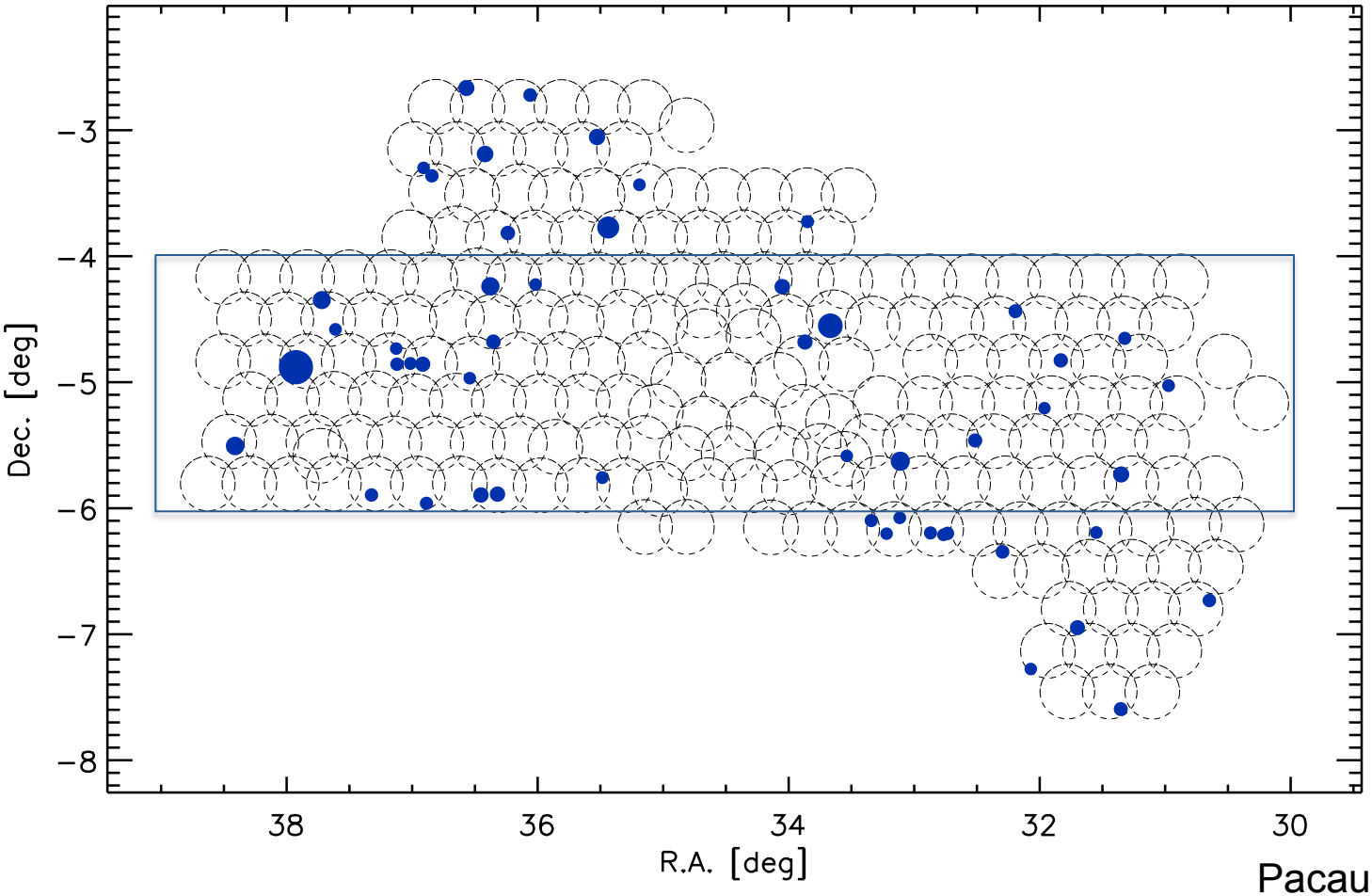
The GAMA survey

- Spectroscopic survey of ≈300000 galaxies
- r < 19.8 mag
- ≈280 deg^2 (over 5 regions)
- 94.95 redshift completeness in the XXL overlap region



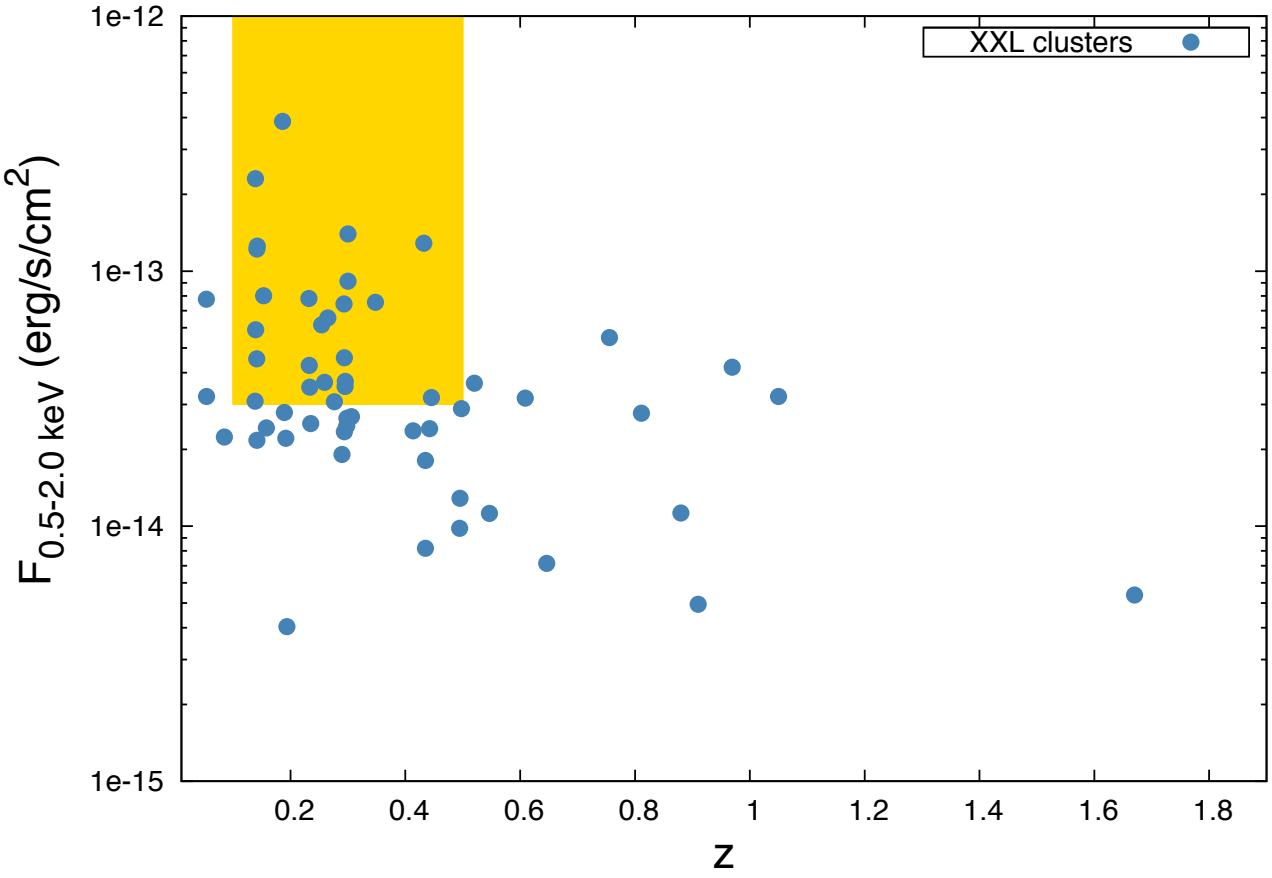
Group catalogue described in Robotham+ 11

The XXL survey (in the north)

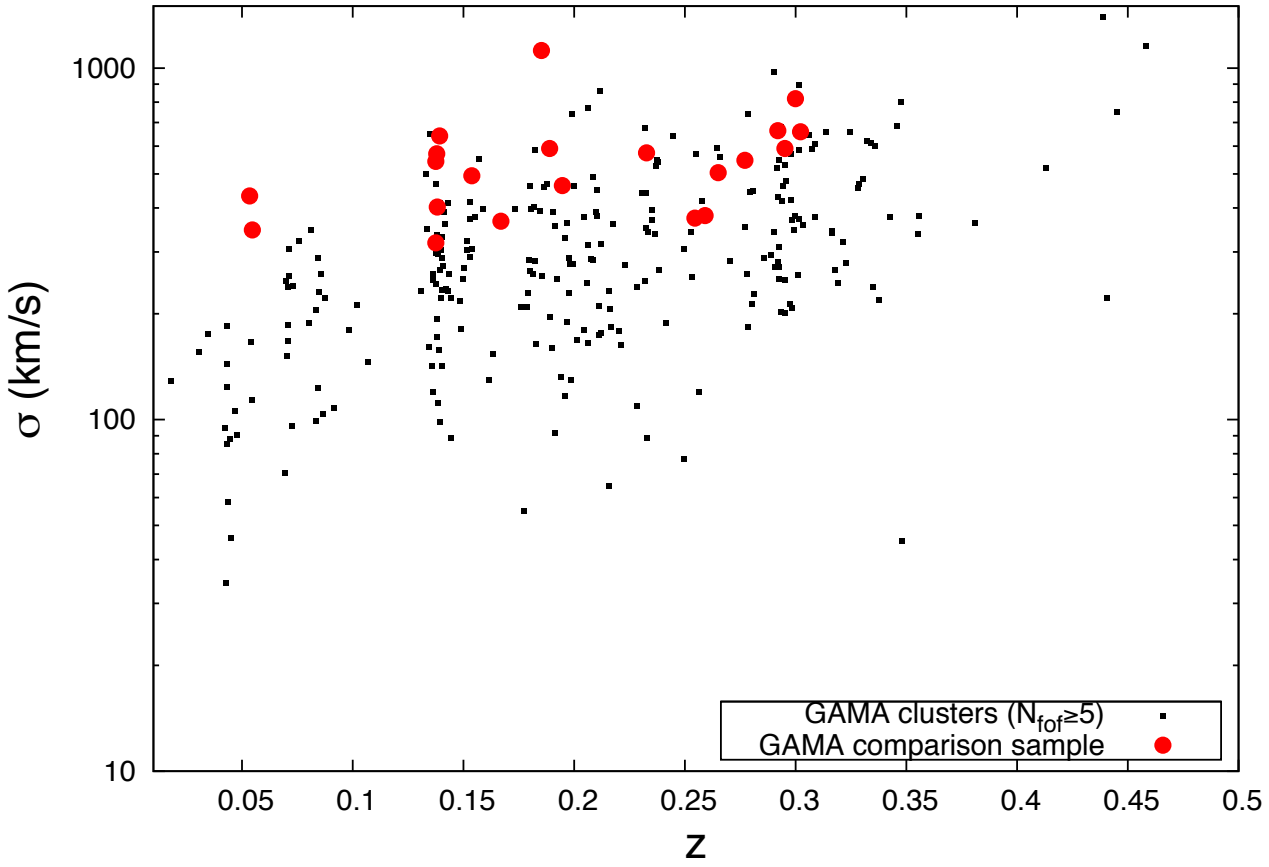


Pacaud+ 16

X-ray selected sample

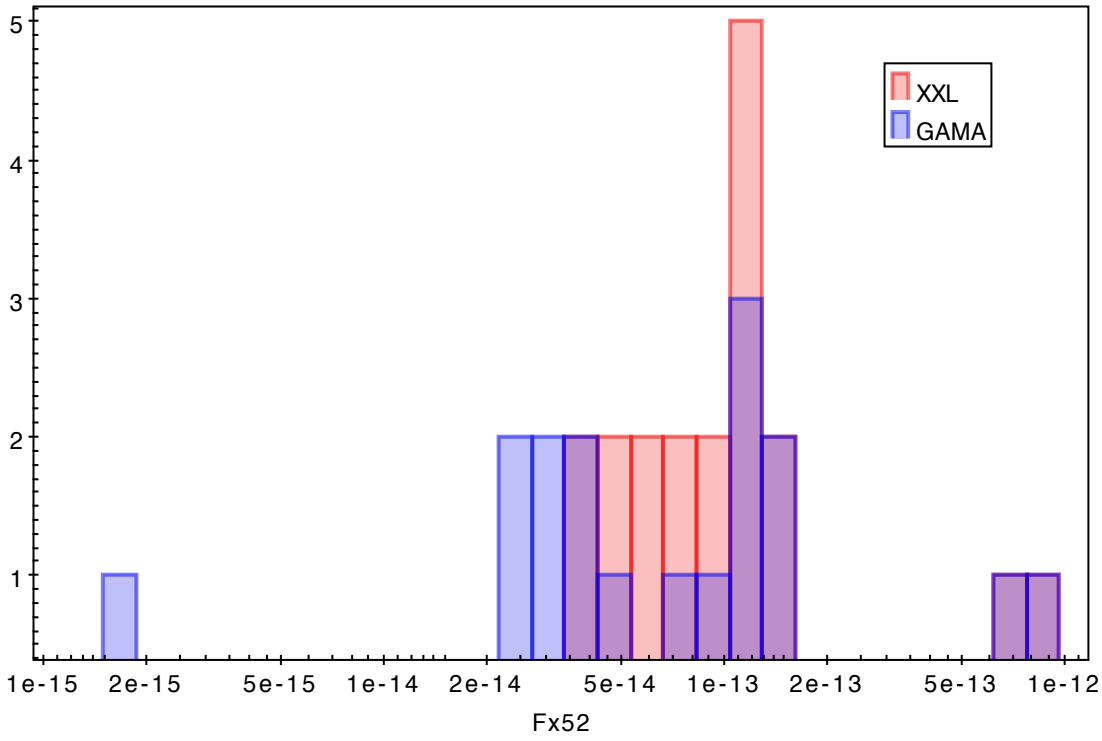


GAMA selected sample

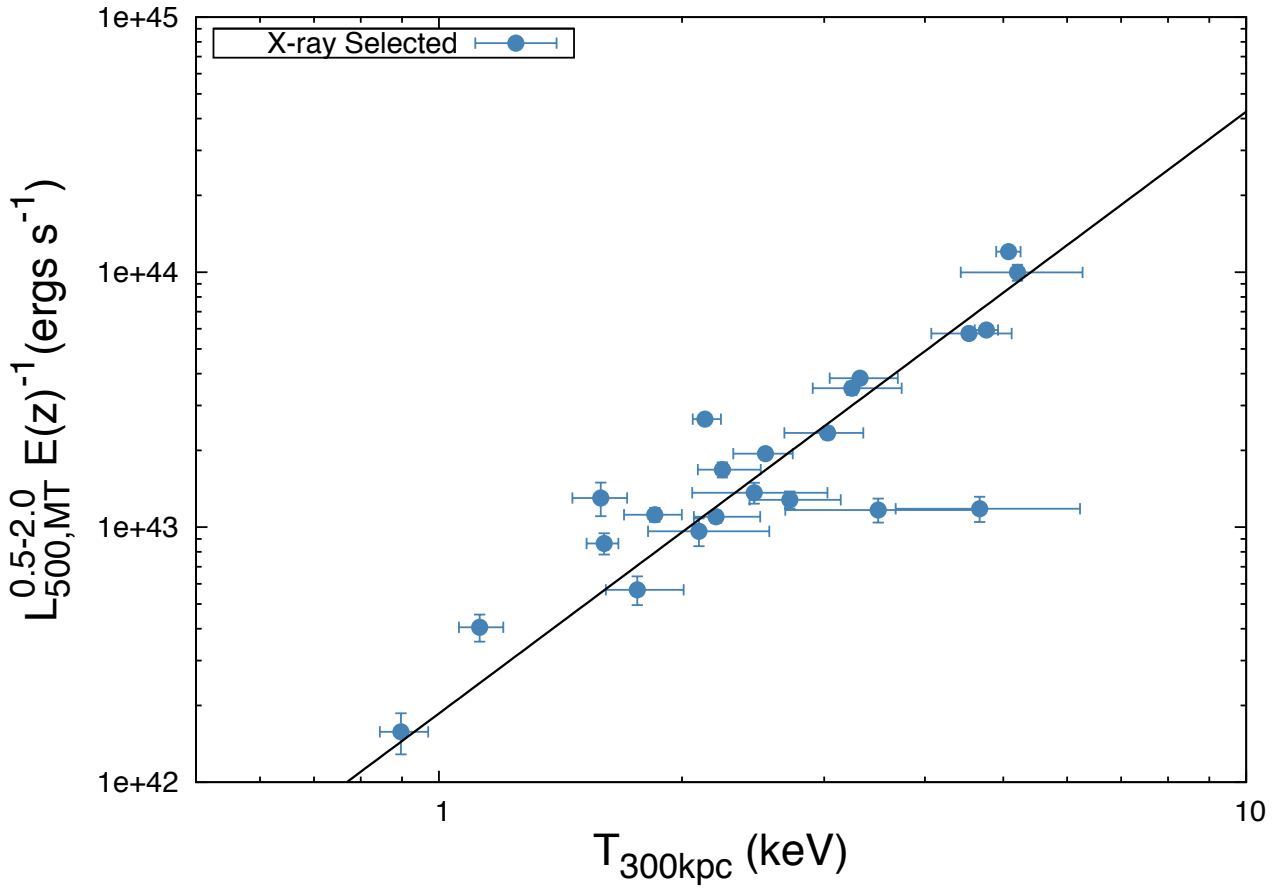


Sample Comparison

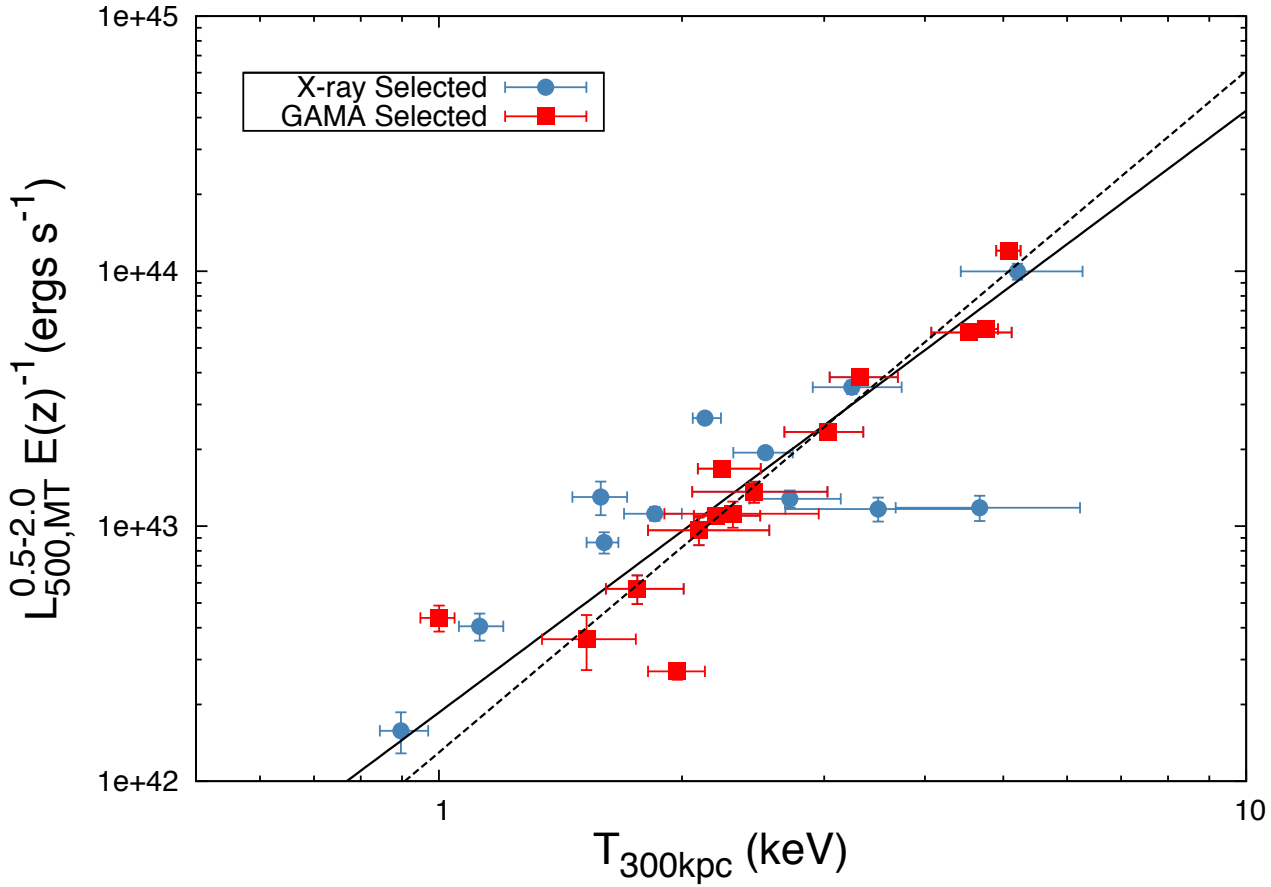
- X-ray sample:
  - Fx > 3 x 10^{-13} erg s^{-1} cm^{-2}
  - 22 groups/clusters
- GAMA sample
  - $N_{fof} \geq 15$ & $\sigma > 300$ km s^{-1}
  - 19 groups/clusters
  - 13 have XXL cluster matches



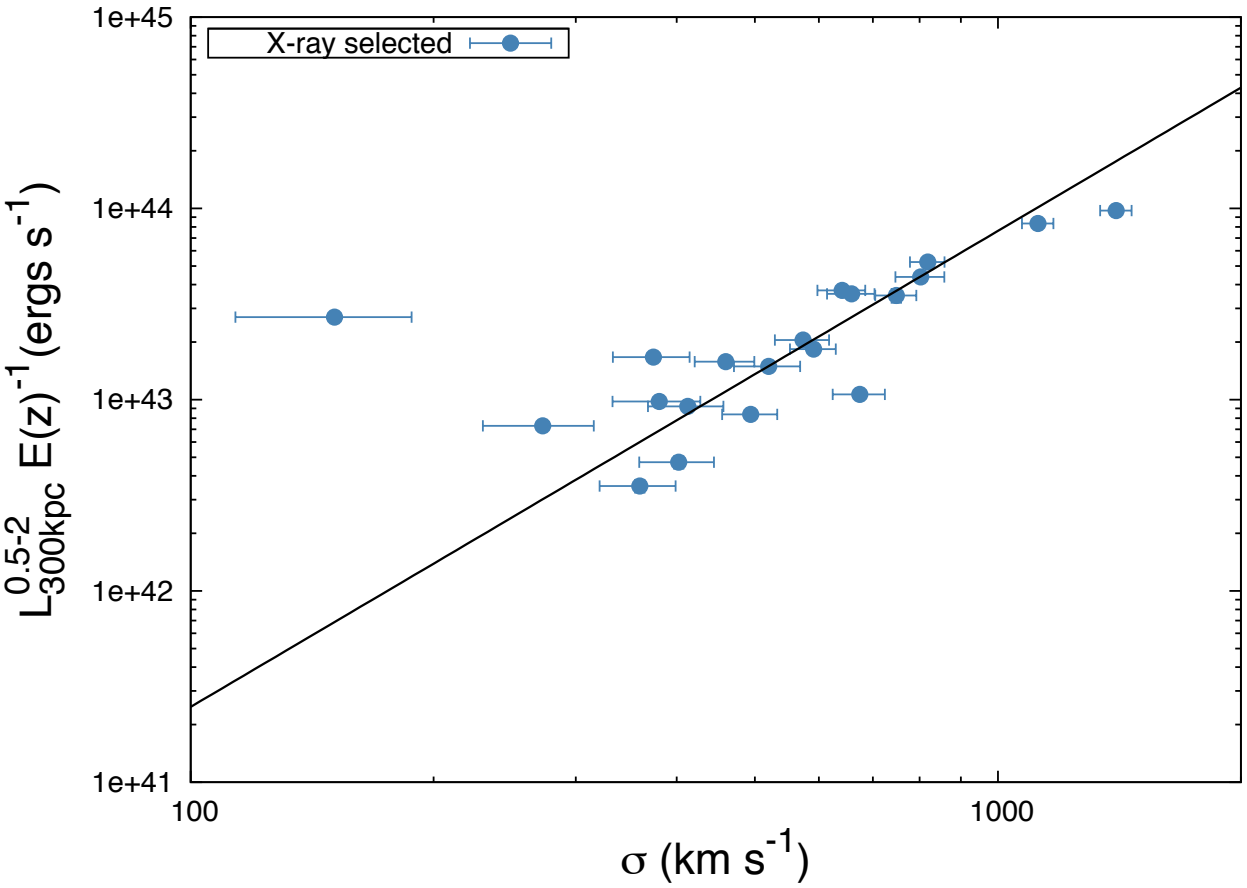
XXL selected LT relation



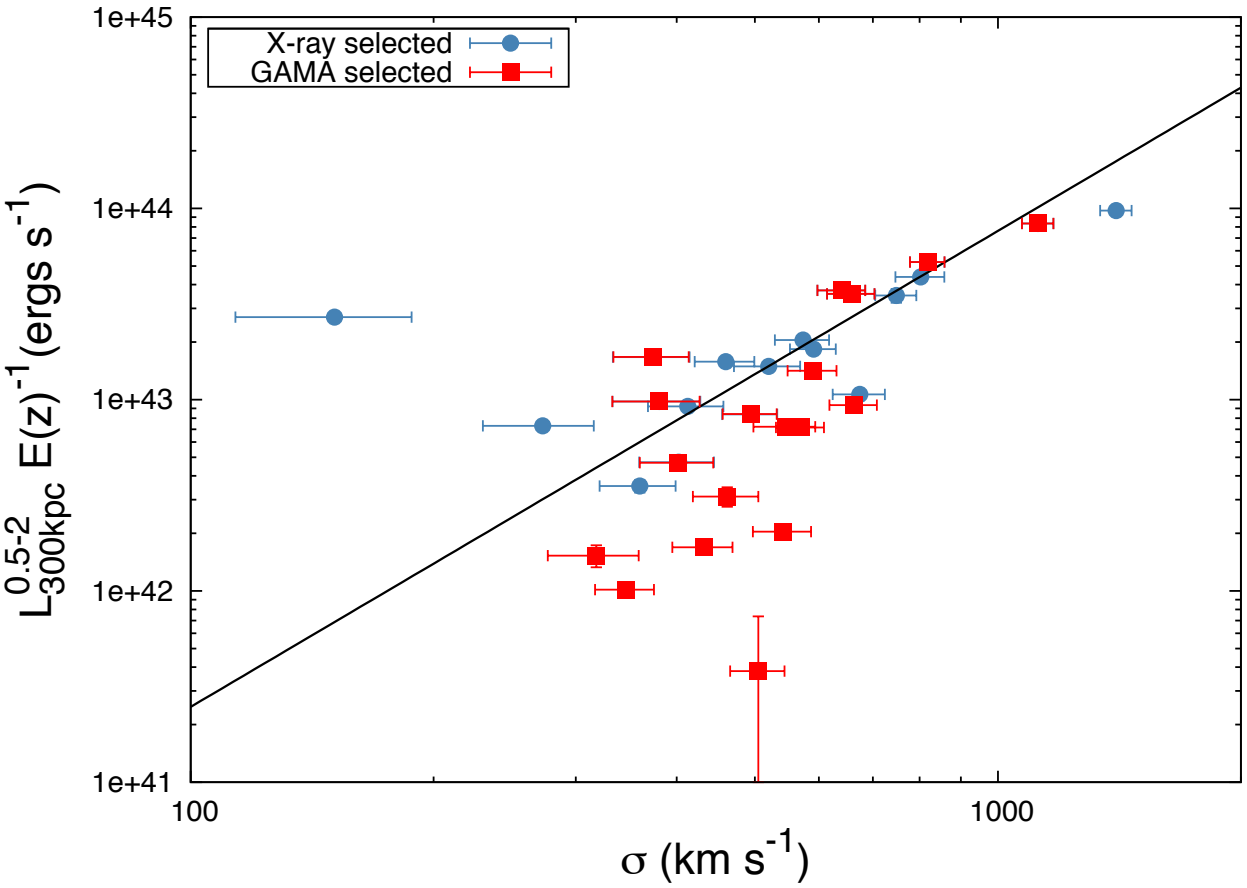
XXL/GAMA LT relation

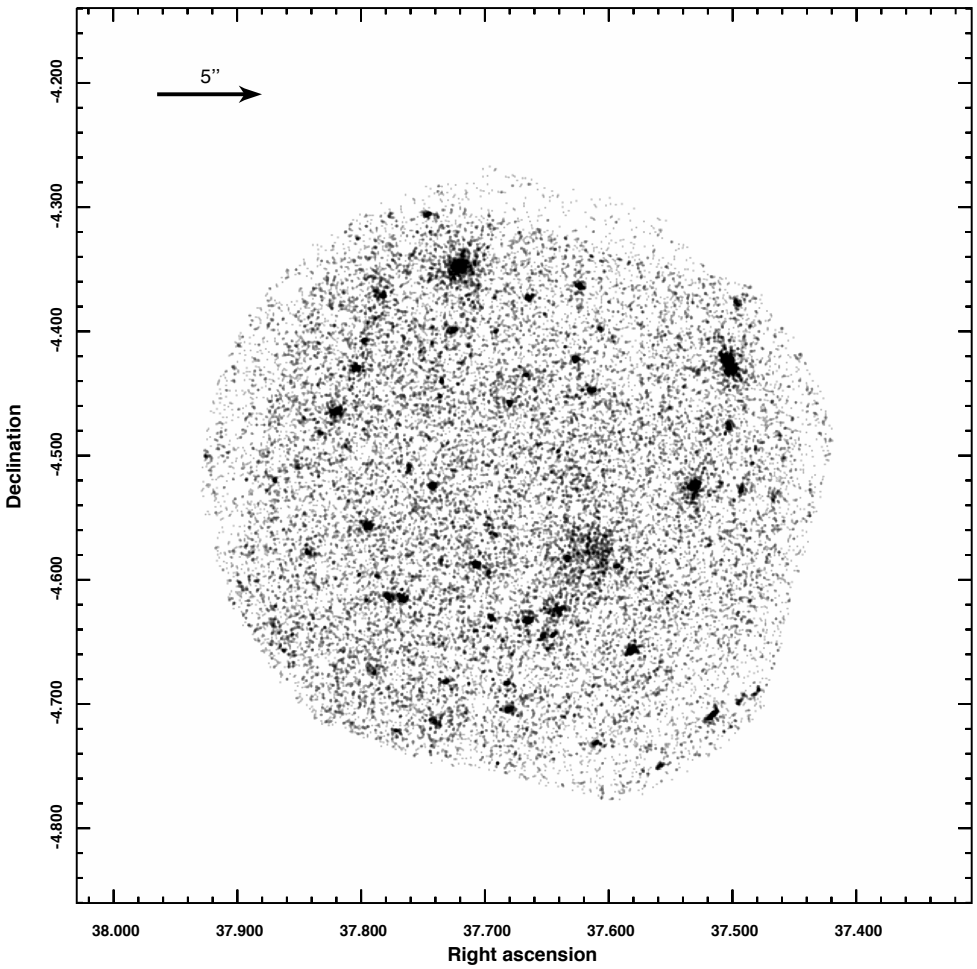


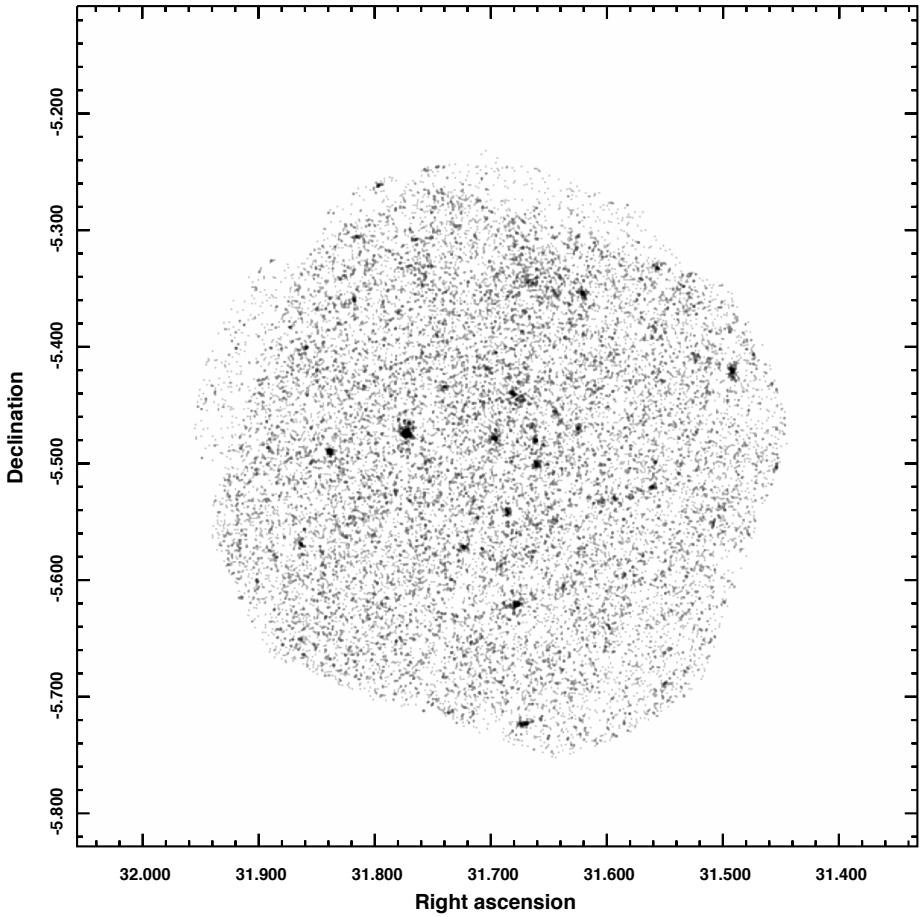
XXL selected Lx-σ relation



XXL/GAMA Lx-σ relation




5”
-4.200
-4.300
-4.400
-4.500
-4.600
-4.700
-4.800
Declination
38.000
37.900
37.800
37.700
37.600
37.500
37.400
Right ascension


Declination
-5.200
-5.300
-5.400
-5.500
-5.600
-5.700
-5.800
32.000
31.900
31.800
31.700
31.600
31.500
31.400
Right ascension

Summary

- Constructed two samples of clusters detected in the XXL and GAMA surveys

- The Lx-T relation for X-ray and optically selected systems (unsurprisingly) agree

- The Lx-σ relation for X-ray selected systems agrees with previous estimates, however, optically selected groups reveal some interesting underluminous systems