

UKIDSS UDS: The emergence of the red sequence

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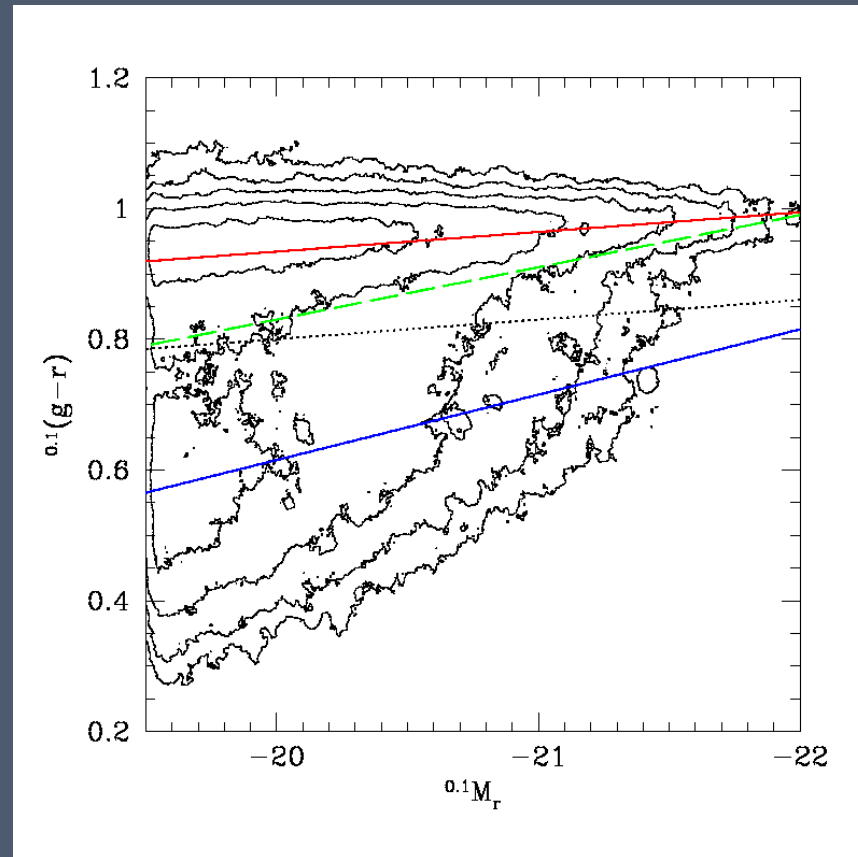
LJMU

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**With special thanks to the JAC
staff!**

A fundamental issue:

Skibba & Sheth (2009)



Current model:



Gas-rich, major merger

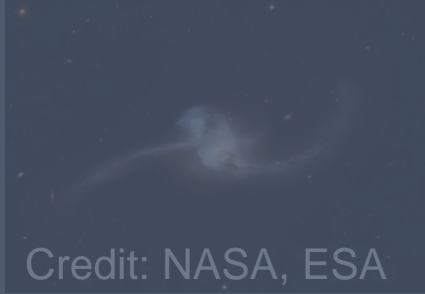


Quasar / intense star-burst phase



Dead spheroid

Current model:



Hierarchical assembly

Free-fall time limit on SF
+ SF feedback



Cooling time limits SFR
+ hot halo formed



M_{halo} large ($\sim 10^{12-13} M_{\text{sun}}$)
 $t_{\text{cool}} \sim t_{\text{H}}$

redshift





High mass halo



Low mass halo



UKIDSS UDS:

DR8

J = 24.9 (5- σ , AB)

H = 24.2

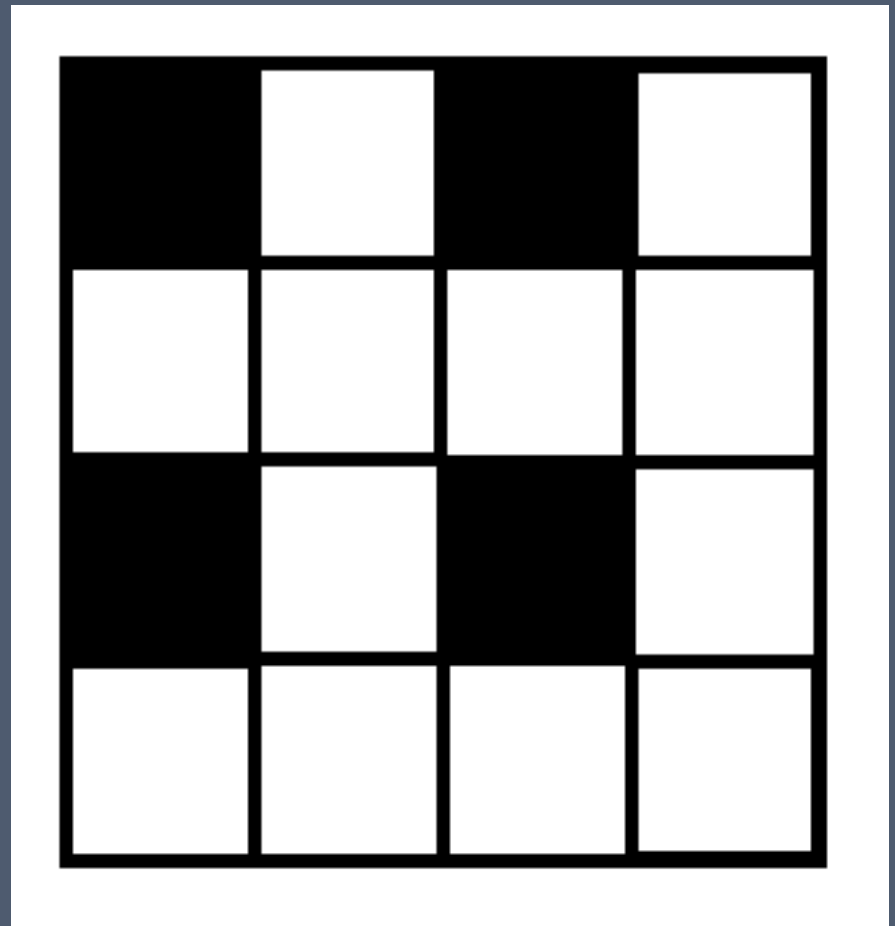
K = 24.6

Double the previous exposure time, and the data are public!

Currently the deepest degree-scale survey by at least half a magnitude.

Next release:
Imminent

Depths are 5- σ rms between 2'' apertures.

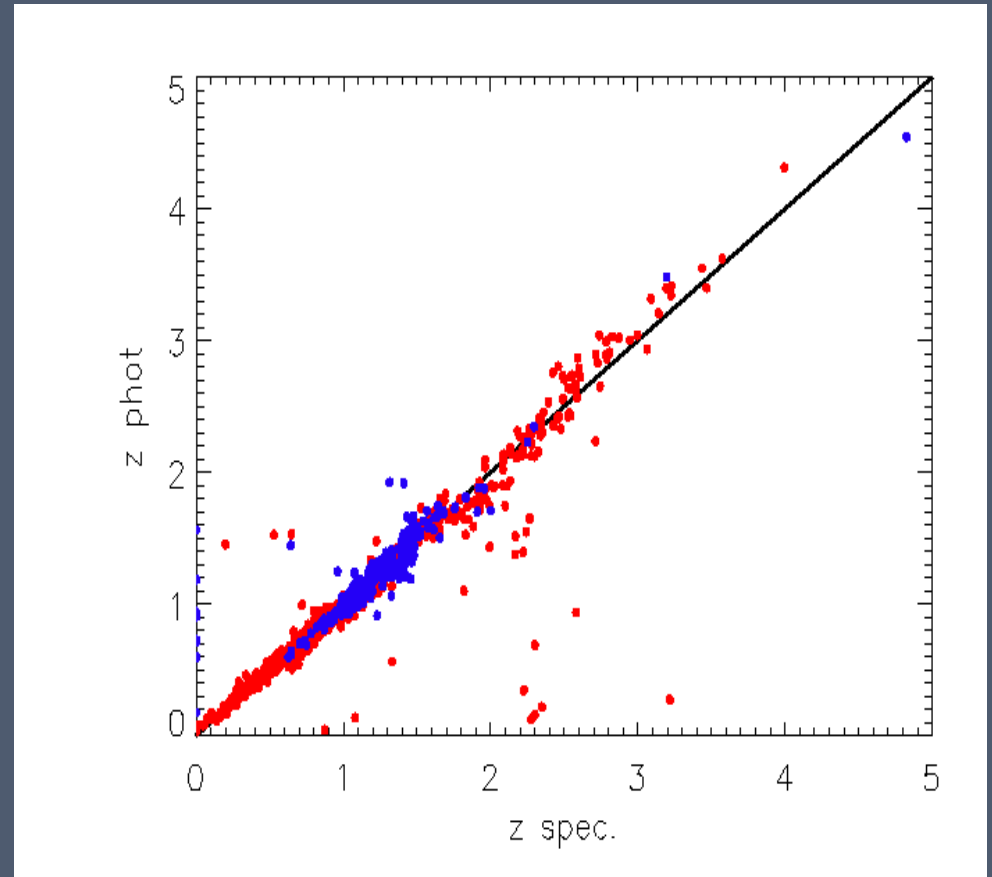


0.88 deg.

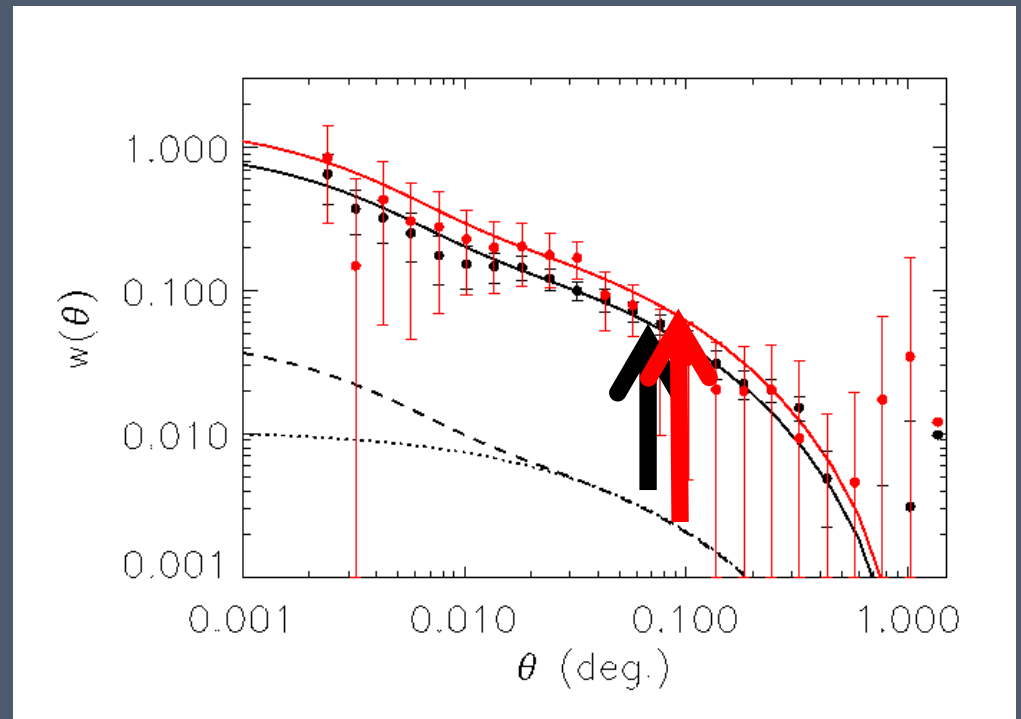
Photometric redshifts

Red: UDSz VIMOS
Blue: UDSz FORS2

$$\Delta z / (1 + z) = 0.028$$

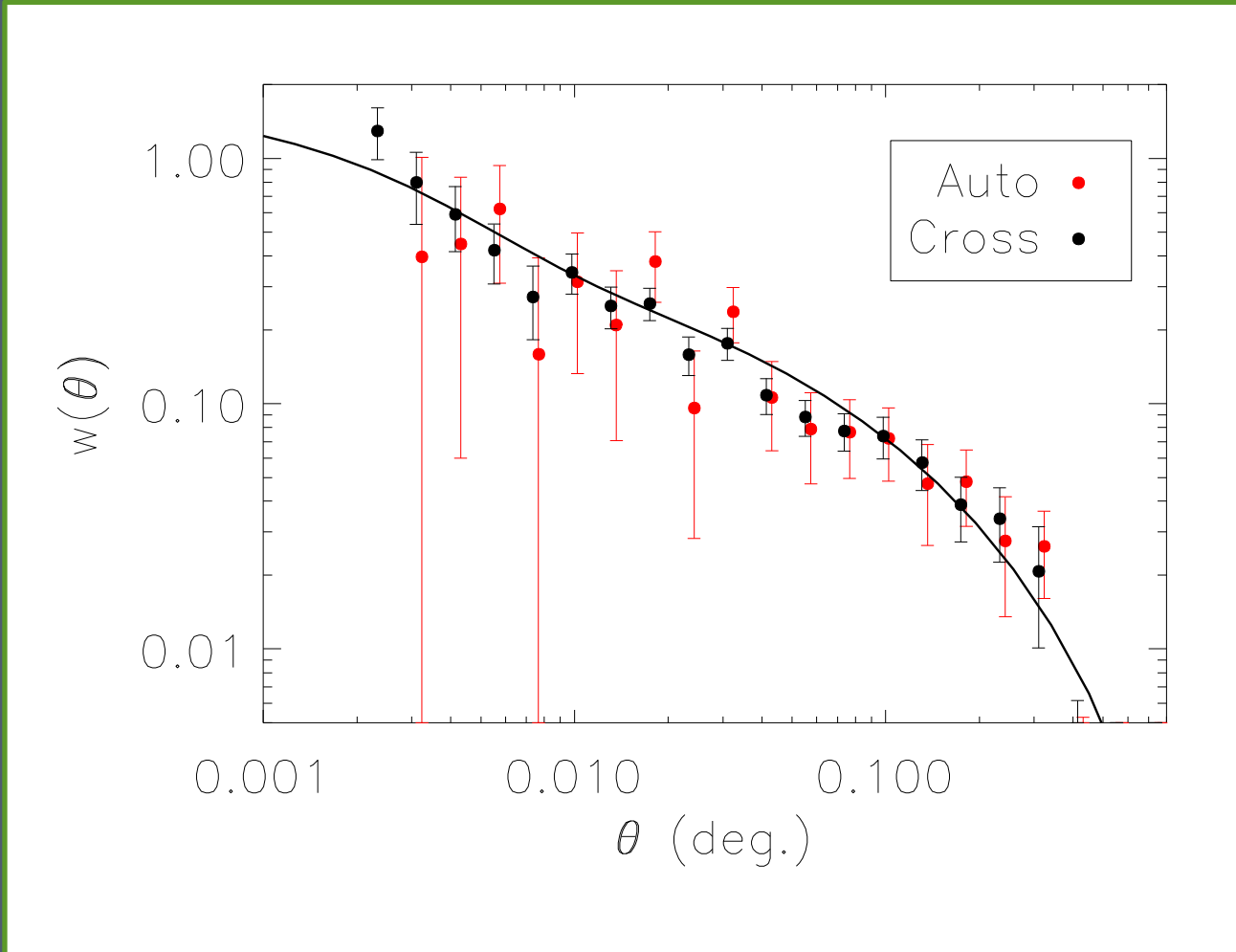


Cross-correlation:



$$\text{Bias}_{RR} = \frac{\text{Bias}_{RG}^2}{\text{Bias}_{GG}}$$

DR8

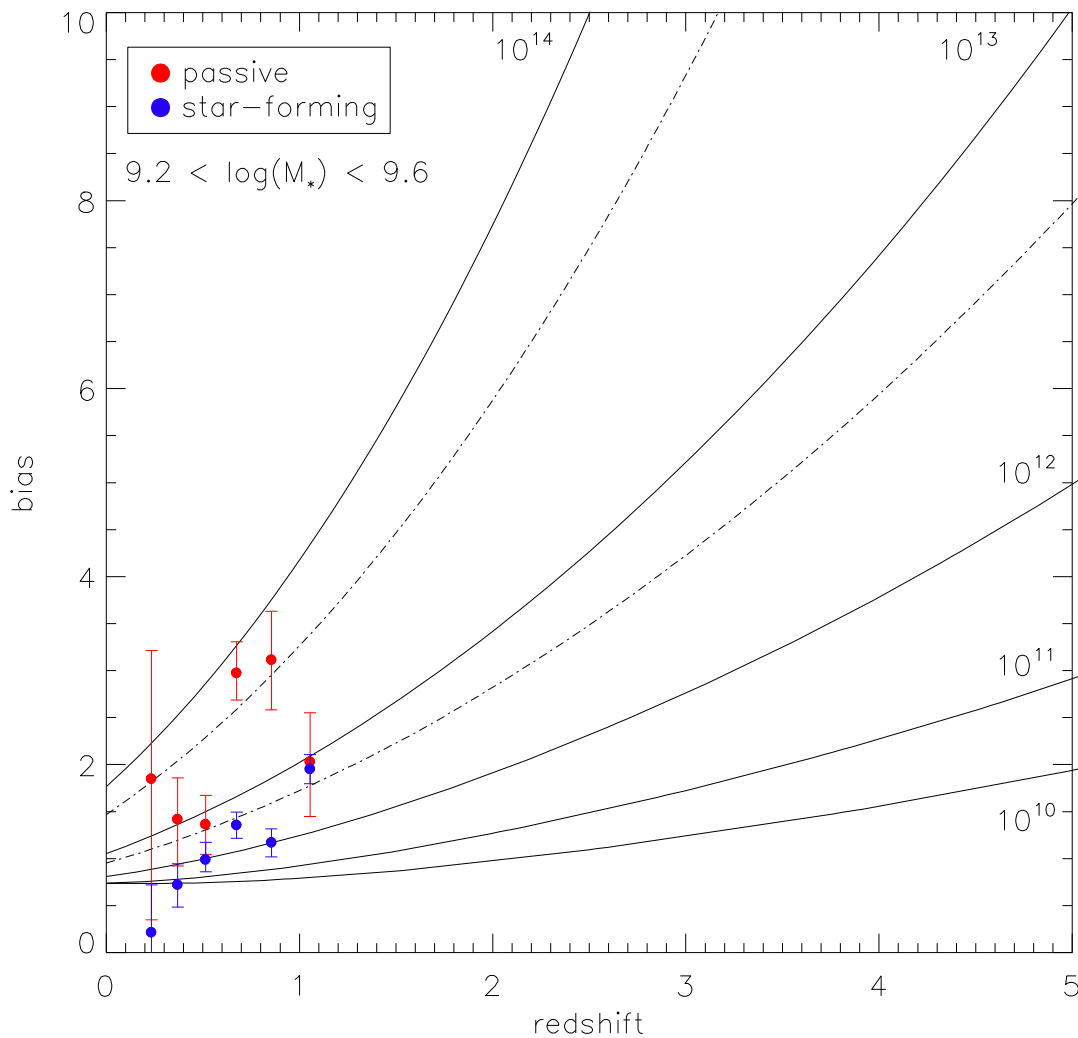


$9.2 < \log M_* < 9.6$

$10^{14} M_{\text{sun}}$

$10^{13} M_{\text{sun}}$

bias

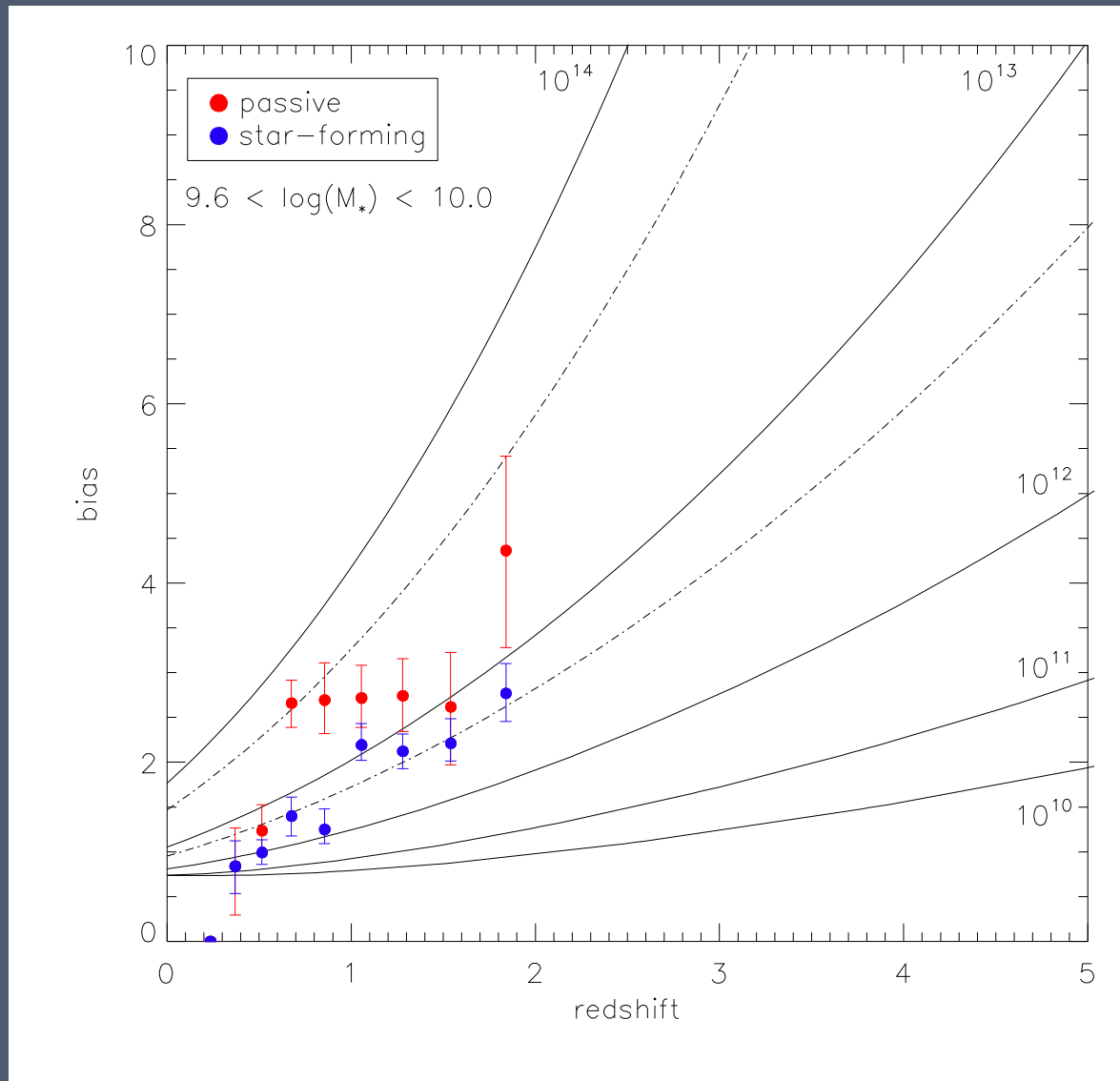


redshift

$9.6 < \log M_* < 10.0$

$10^{14} M_{\text{sun}}$

$10^{13} M_{\text{sun}}$



$10^{12} M_{\text{sun}}$

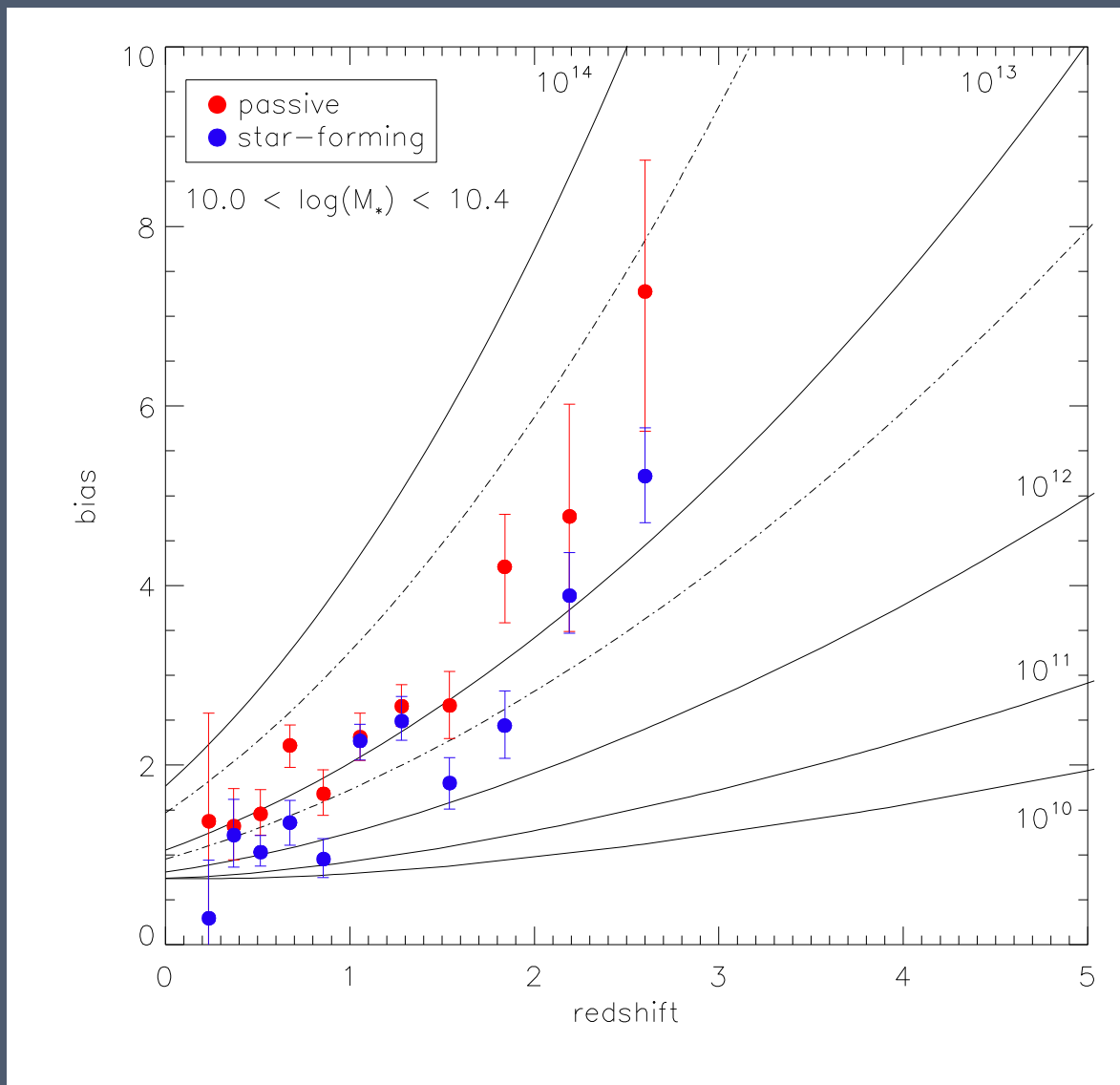
$10^{11} M_{\text{sun}}$

$10^{10} M_{\text{sun}}$

$10.0 < \log M_* < 10.4$

$10^{14} M_{\text{sun}}$

$10^{13} M_{\text{sun}}$



$10^{12} M_{\text{sun}}$

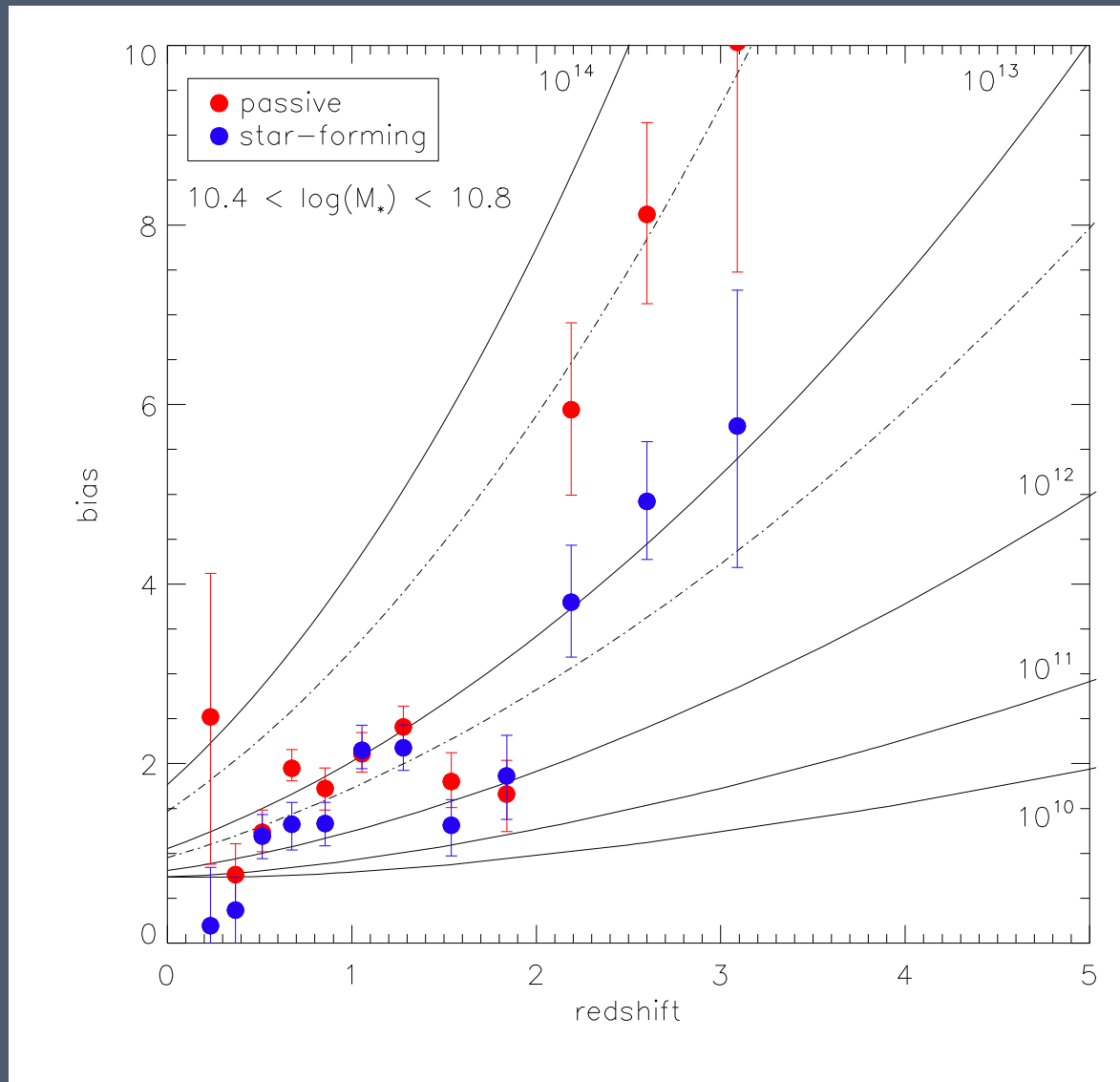
$10^{11} M_{\text{sun}}$

$10^{10} M_{\text{sun}}$

$10.4 < \log M_* < 10.8$

$10^{14} M_{\text{sun}}$

$10^{13} M_{\text{sun}}$



$10^{12} M_{\text{sun}}$

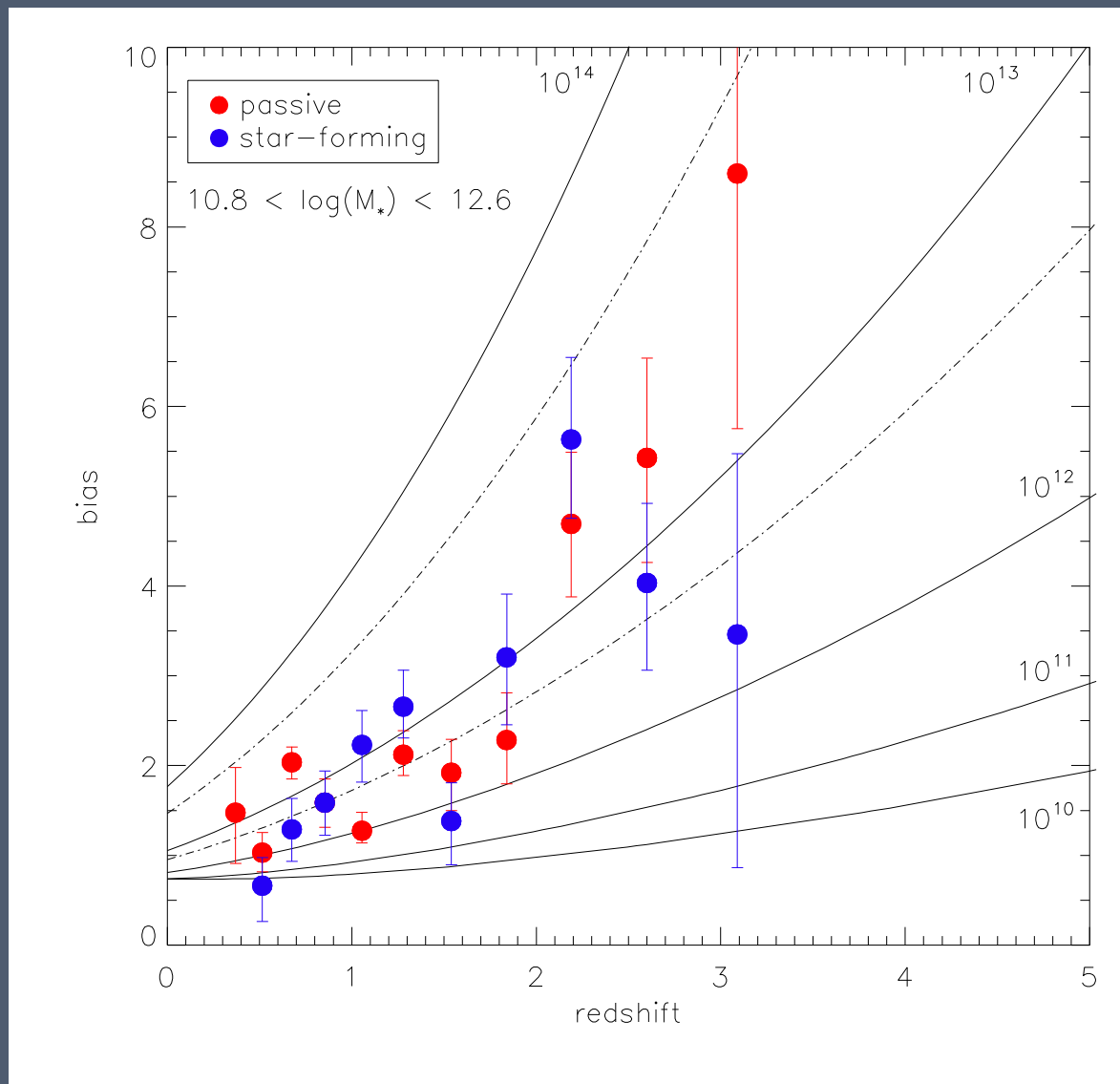
$10^{11} M_{\text{sun}}$

$10^{10} M_{\text{sun}}$

$10.8 < \log M_*$

$10^{14} M_{\text{sun}}$

$10^{13} M_{\text{sun}}$



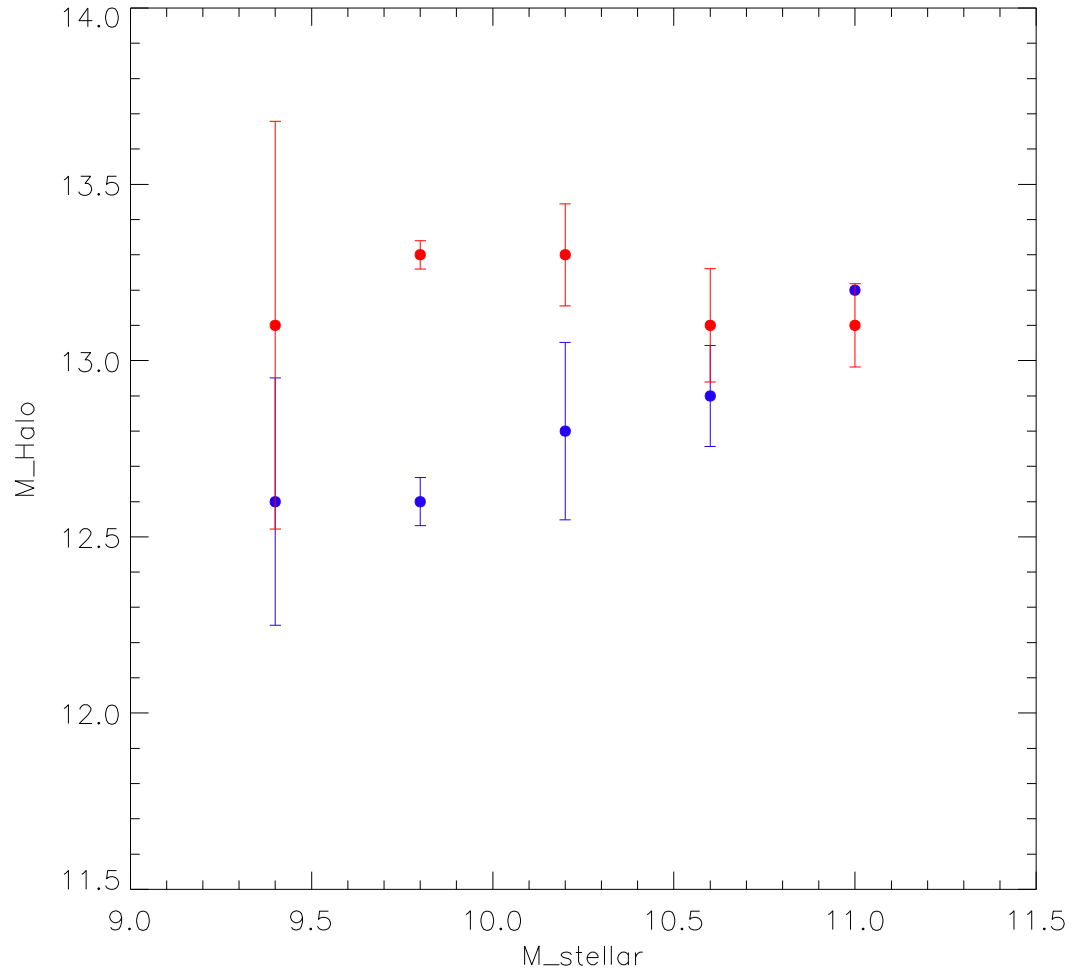
$10^{12} M_{\text{sun}}$

$10^{11} M_{\text{sun}}$

$10^{10} M_{\text{sun}}$

$0.7 < z < 3.0$

Halo mass

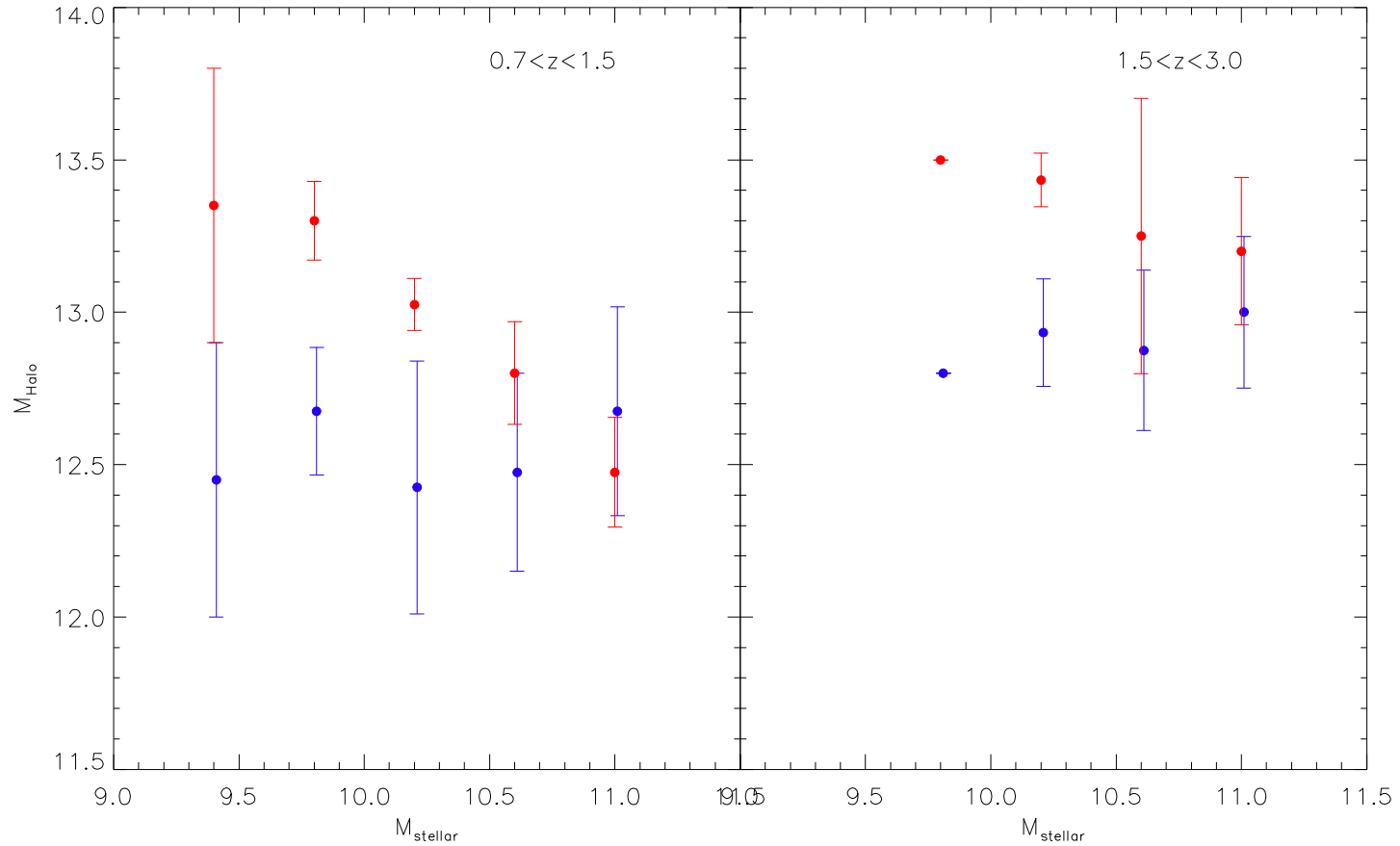


Stellar mass

$0.7 < z < 1.5$

$1.5 < z < 3.0$

Halo mass



Stellar mass

Summary

The UKIDSS UDS is currently the best near-IR survey for studies of large-scale structure at $z > 1$ (amongst other science goals).

We have used the cross-correlation technique to probe the masses of DM halos hosting passive galaxies to $z \sim 3$.

Results are **consistent** with a simple model in which halo mass has an important role is quenching star-formation.

Thanks for listening!