First workshop dedicated to:
AGN clustering measurements

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

Discussion session

First workshop dedicated to:
AGN clustering measurements

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

Open question

1) consensus on X-ray vs radio vs optical vs IR (vs type) AGN and/or quasar clustering strength as a function of redshift?

2) Why do we think AGN with jets are found primarily in massive galaxies?

- **selection effect?**
- **stellar mass?**
- **merger history – impacts spin of BH**
- **density of surrounding gas that allows us to see the lobes?**
- **...other?**

First workshop dedicated to: **AGN clustering measurements**

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

Open question

3) What is the relative importance of host galaxy properties vs AGN activity in determining clustering strength (again as a function of redshift and luminosity)? stellar mass?

4) Improving the synergy between simulations and observations!

First workshop dedicated to:
AGN clustering measurements

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

Open question

5) most/all quasars are triggered by gas-rich major mergers?

6) statistically-significant luminosity dependence for AGN clustering? ⇒

at what significance?

for what kinds of AGN?

what about obscuration

M_{BH}, L/L_{EDD}

First workshop dedicated to:
AGN clustering measurements

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

Open question

7) Is AGN clustering different to galaxy clustering on these scales? What is the form of the HOD for the one-halo term? What are the next steps for determining what drives the small-scale HOD?

8) How well can we measure clustering using photo-zs in large surveys?

9) given the coming future large surveys, what are the most scientifically interesting next projects we should pursue?

First workshop dedicated to:
AGN clustering measurements

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

systematics,
systematics,
systematics

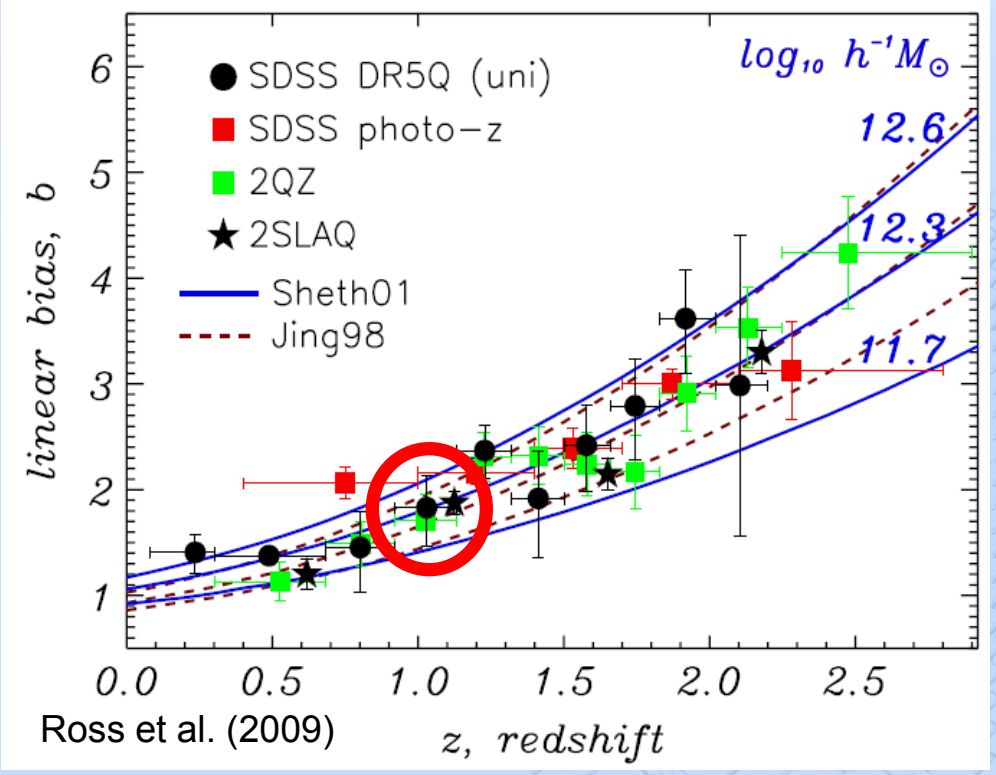
First workshop dedicated to:
AGN clustering measurements

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

Method – how to get a more uniform picture

bias – M_{DMH} conversation

different groups use different conversions!



Ross et al. (2009)

most of optical community:

b = 1.83 @ z = 1.03

log M_{DMH} ~12.3

~0.6 dex

most of X-ray community

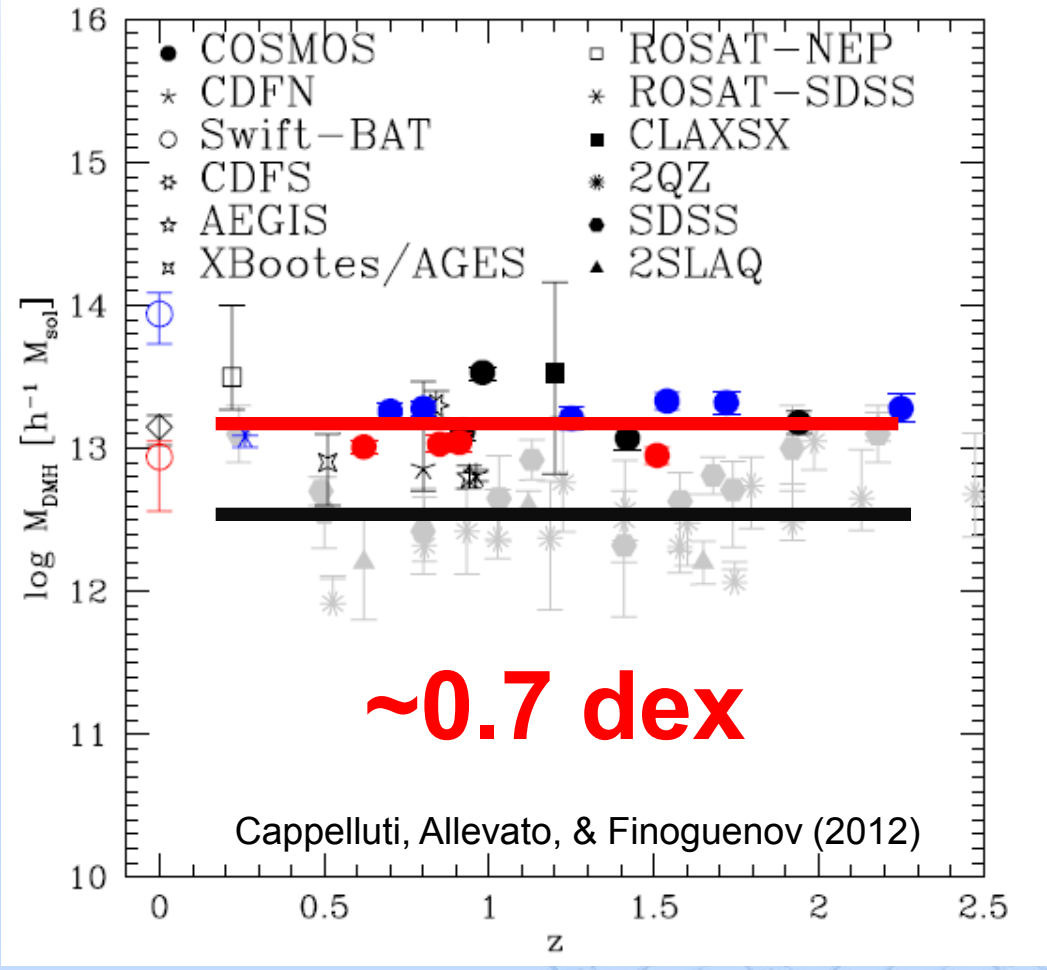
b = 1.83 @ z=1.03

log M_{DMH} = 12.94 !!!

First workshop dedicated to:
AGN clustering measurements

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

Huge difference in bias – M_{DMH} conversation



difference real at all?

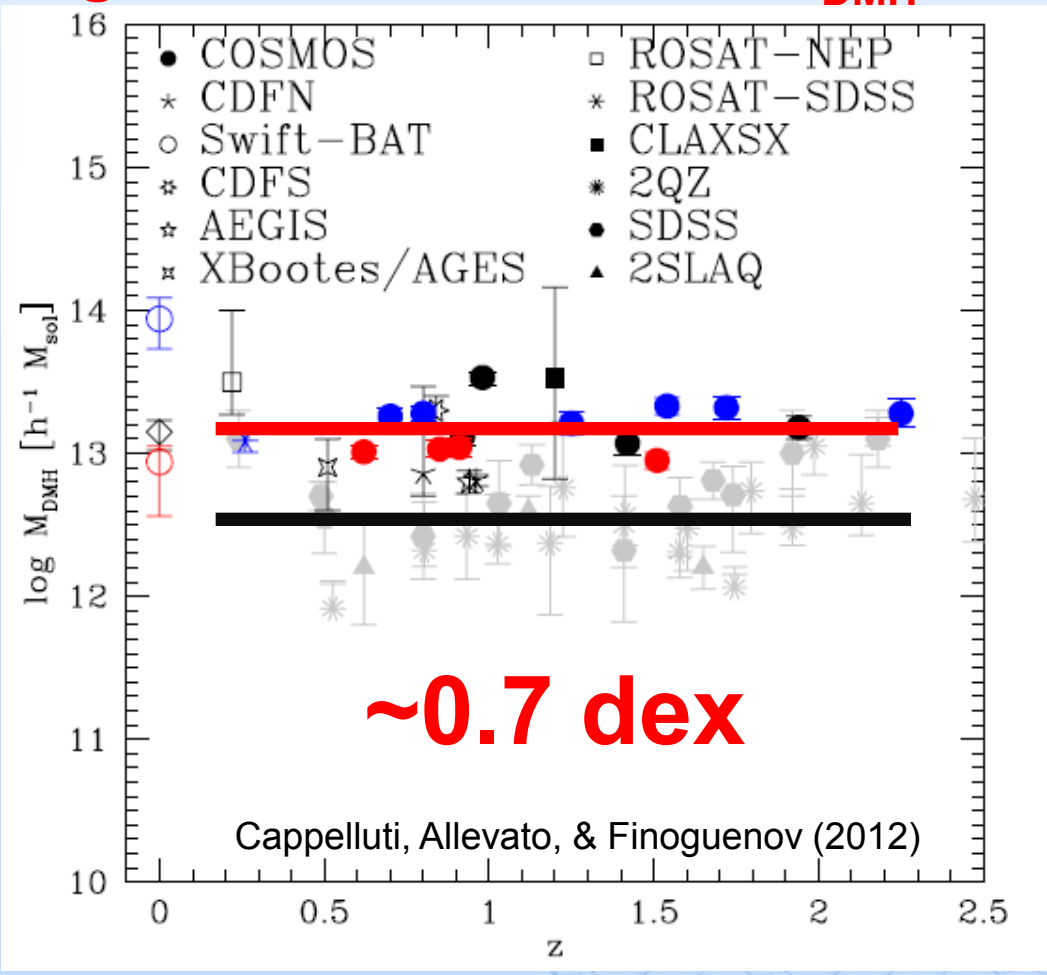
1) power spectrum
2) fit: Sheth et al., Tinker et al.
3) cosmology

0.17 dex

First workshop dedicated to:
AGN clustering measurements

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

Huge difference in bias – M_{DMH} conversation



difference real at all?

1) power spectrum
2) fit: Sheth et al., Tinker et al.
3) cosmology

„Instead of blindly comparing the derived DMH mass, re-calculating the masses based on the same linear bias to DMH mass relation … when com-paring measurements in the literature.” (Krumpe et al. 2013)

First workshop dedicated to:
AGN clustering measurements

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

Let's us agree on a standard!

1) same cosmology (e.g, WMAP 7) ⇒ website?

2) Same bias to M_{DMH} conversion ⇒ website/tool?

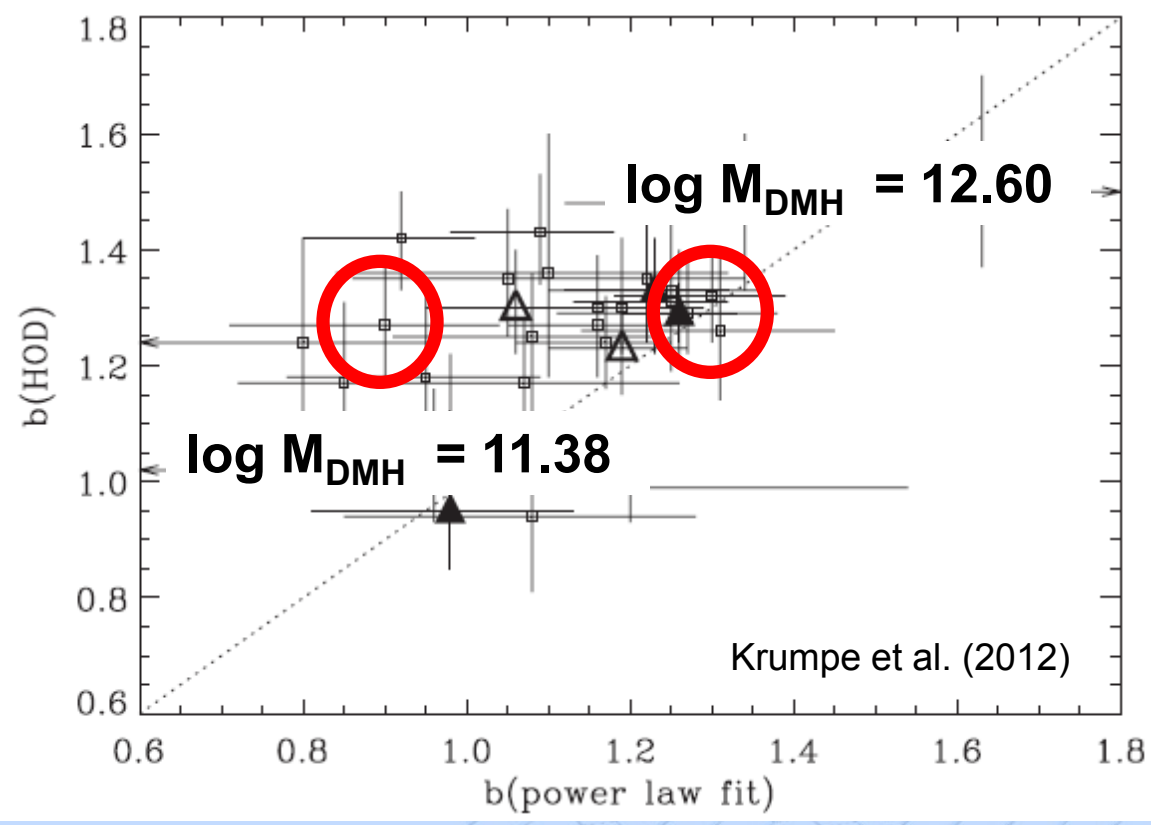
3) Computation of uncertainties ⇒ ???

First workshop dedicated to: **AGN clustering measurements**

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

Let's us agree on a standard!

4) Power-law fits / HOD derived bias parameters ⇒ ???



different b

⇒

different M_{DMH}!

⇒

correlations that just do not exist!

First workshop dedicated to:
AGN clustering measurements

ESO
European Organisation for Astronomical Research in the Southern Hemisphere

What should we publish

1) observational results: $w_P(r_P)$ ⇒ appendix/online version?

2) covariance matrix/diagonal elements ⇒ appendix/online?

3) ...other things (e.g., r_0 vs γ contours) ⇒ ???