

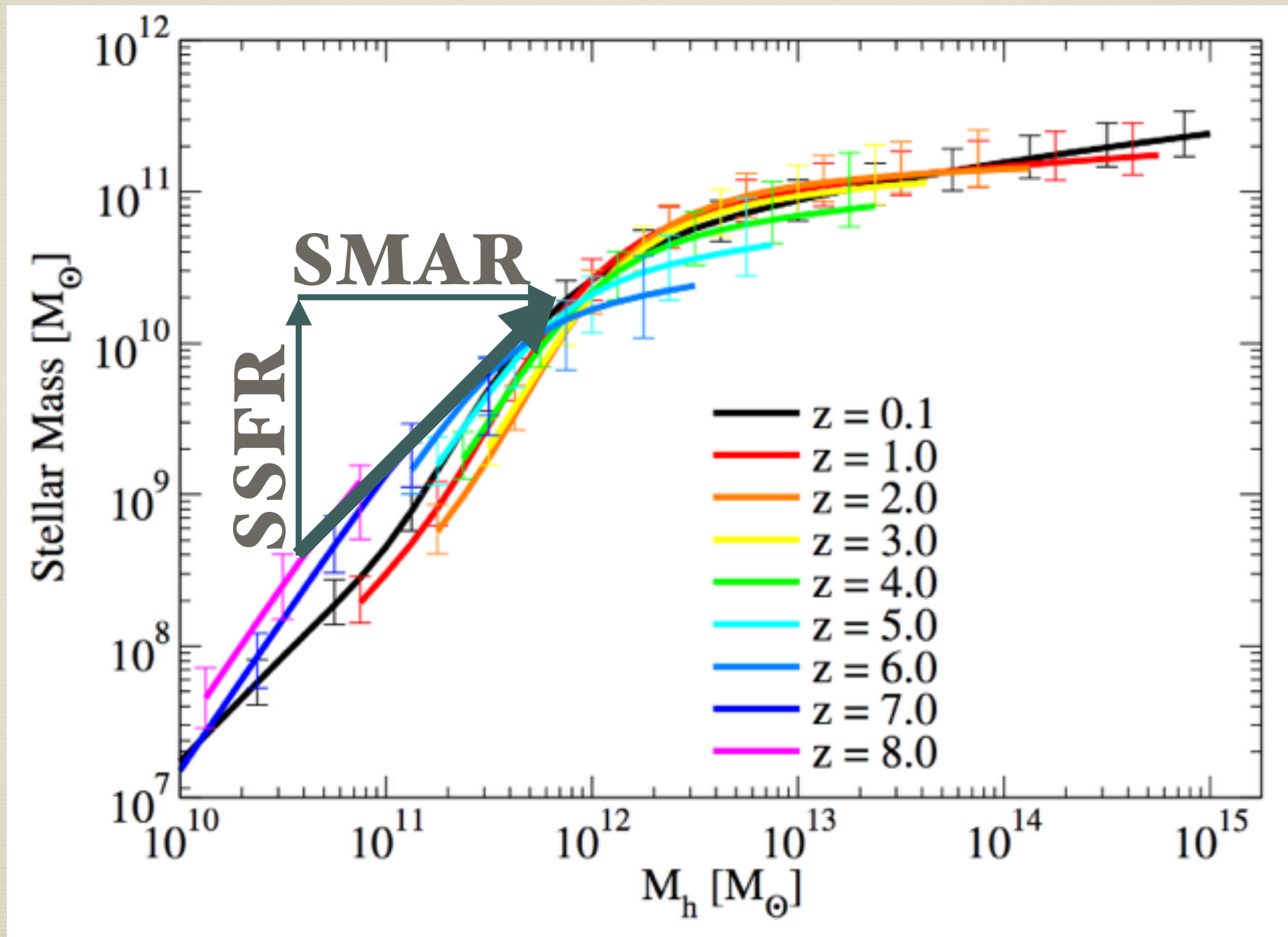
CLOSE PAIRS AS PROBES OF DM ACCRETION & STAR FORMATION



Picture Credit: NASA, ESA, S. Beckwith (STScI), and The Hubble Heritage Team STScI/AURA)

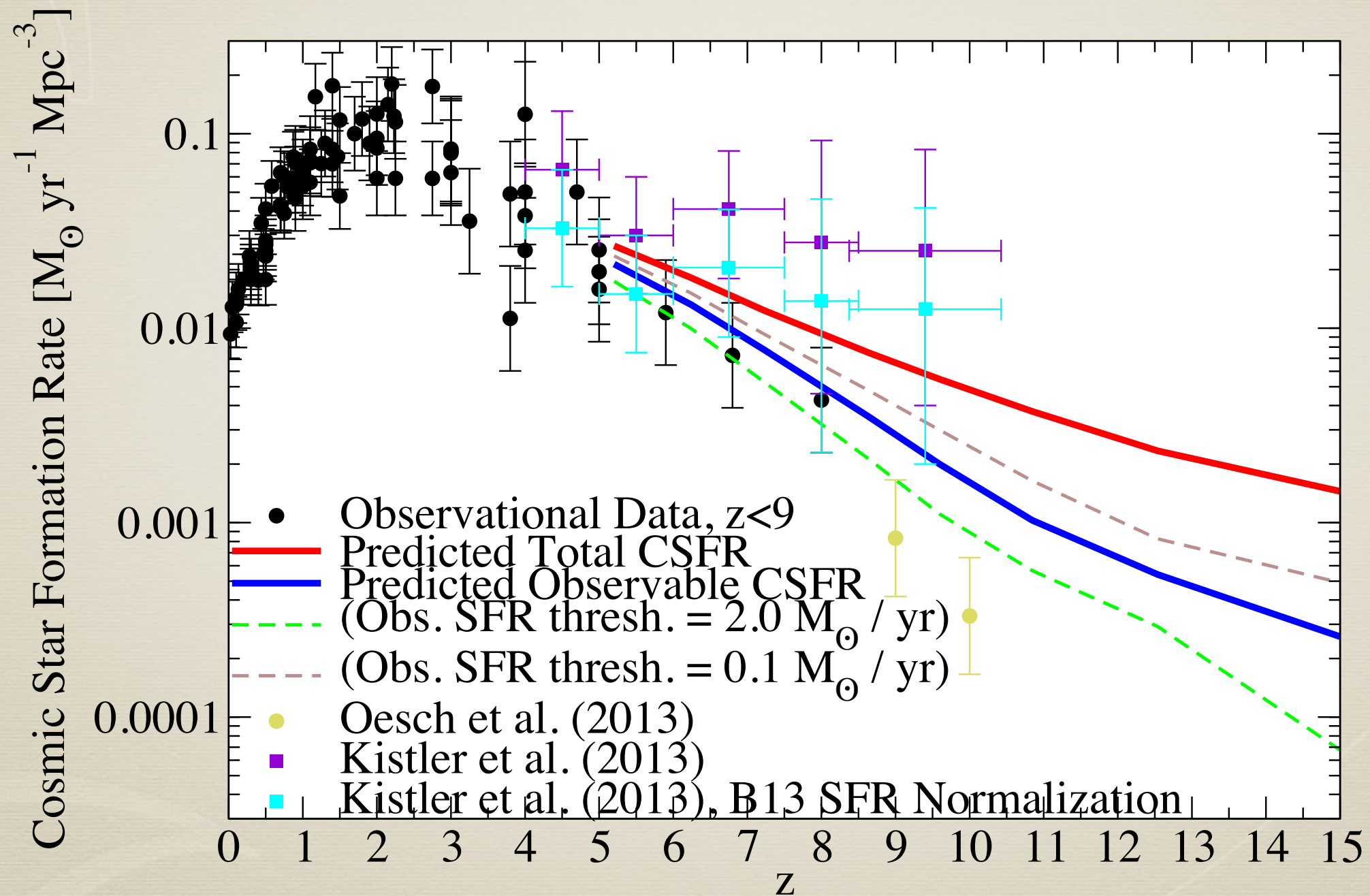
Peter Behroozi, STScI
UCSC Galaxy Formation Workshop, 8/14/14

High-Z Star Formation



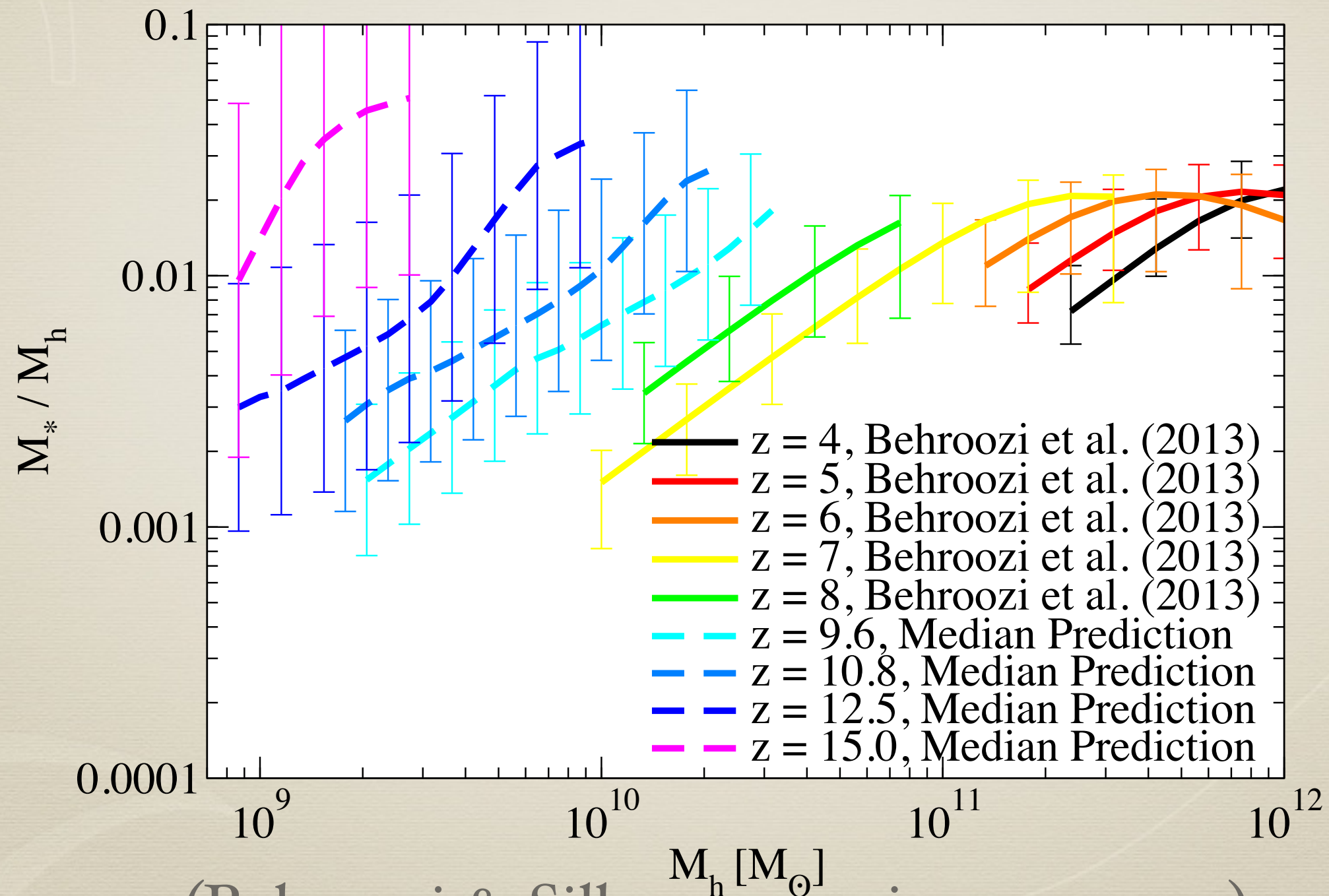
(Behroozi & Silk 2014; arxiv: 1404.5299)

High-Z Star Formation



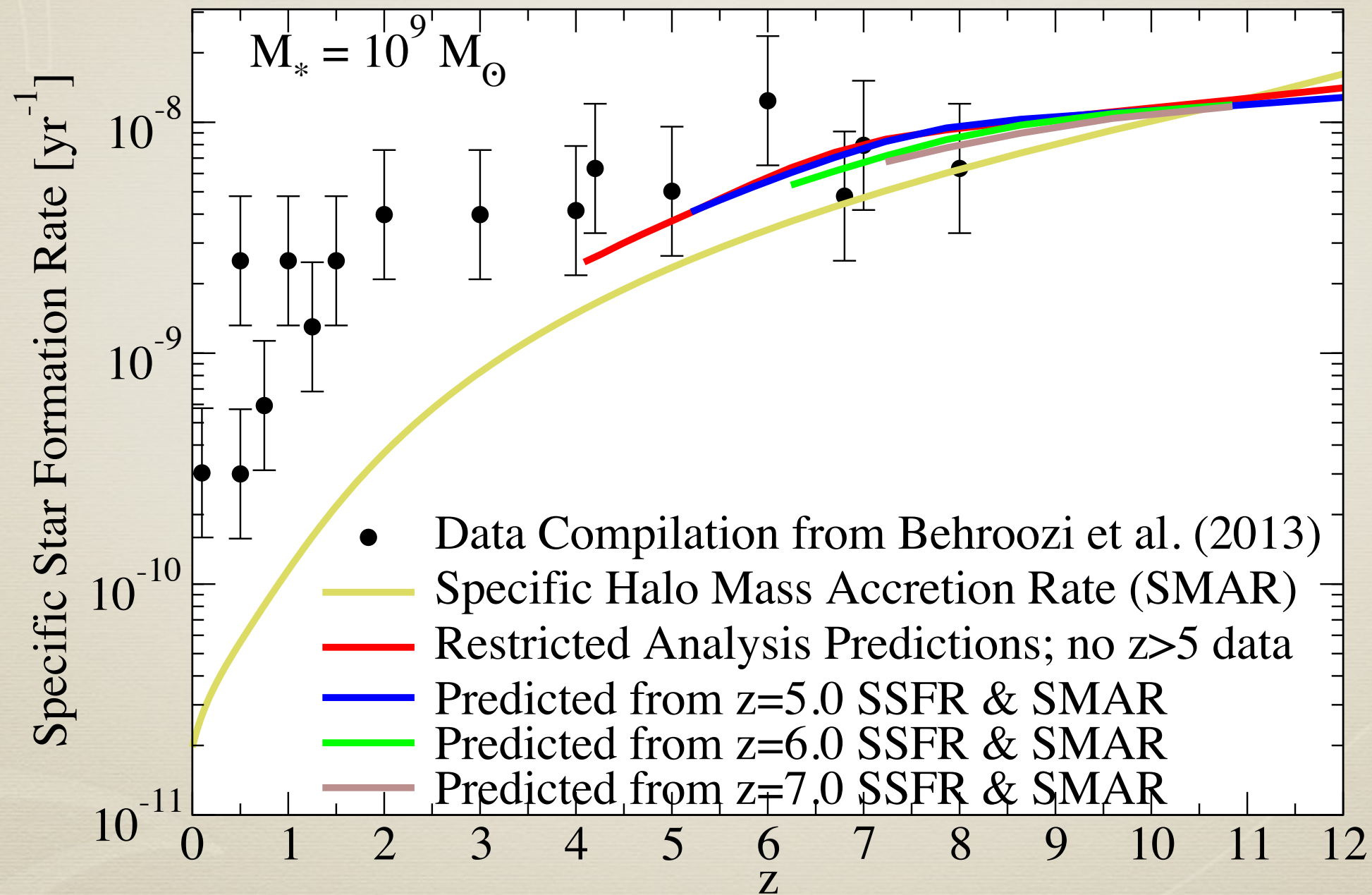
(Behroozi & Silk 2014; arxiv: 1404.5299)

High-Z Star Formation



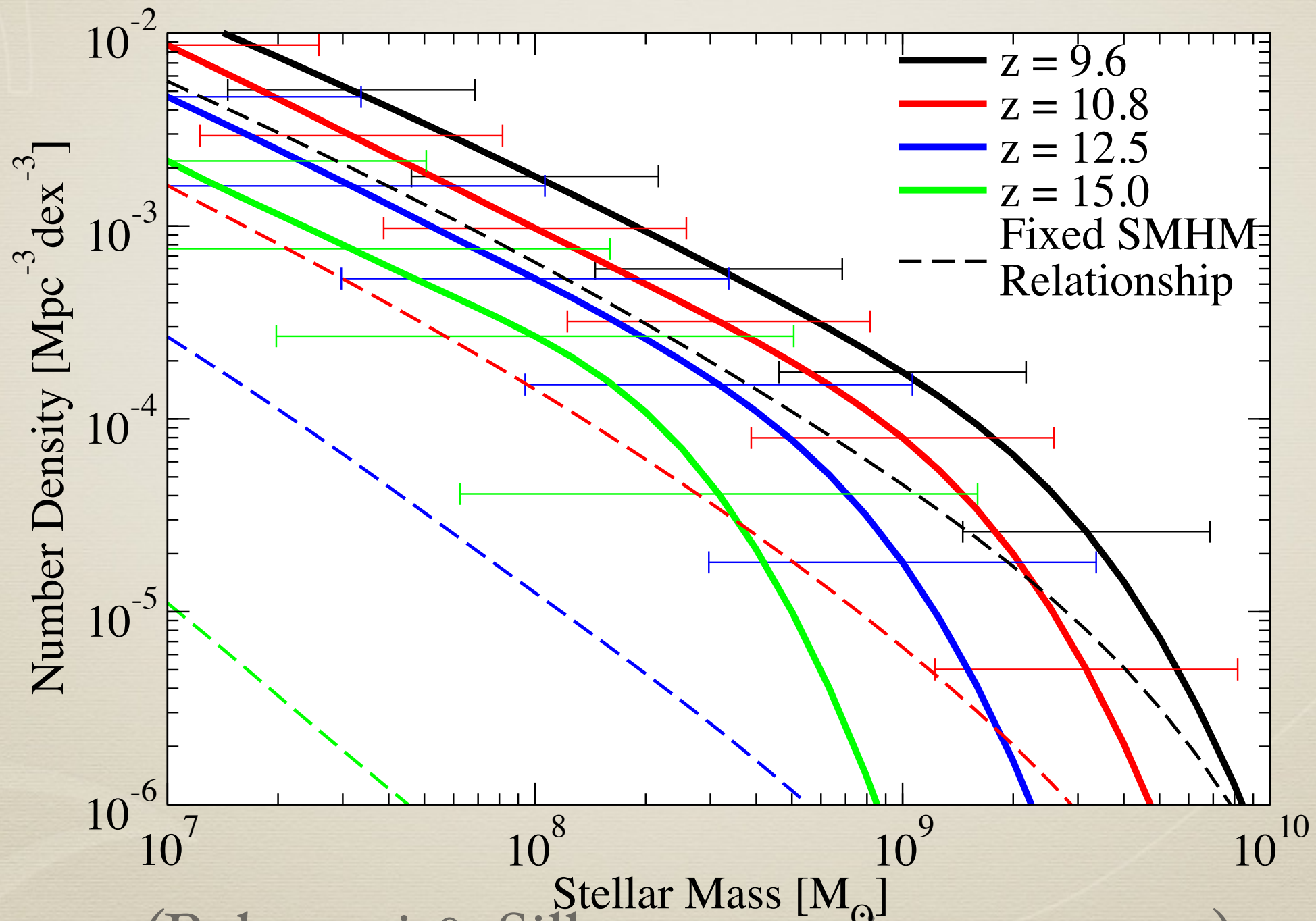
(Behroozi & Silk 2014; arxiv: 1404.5299)

High-Z Star Formation



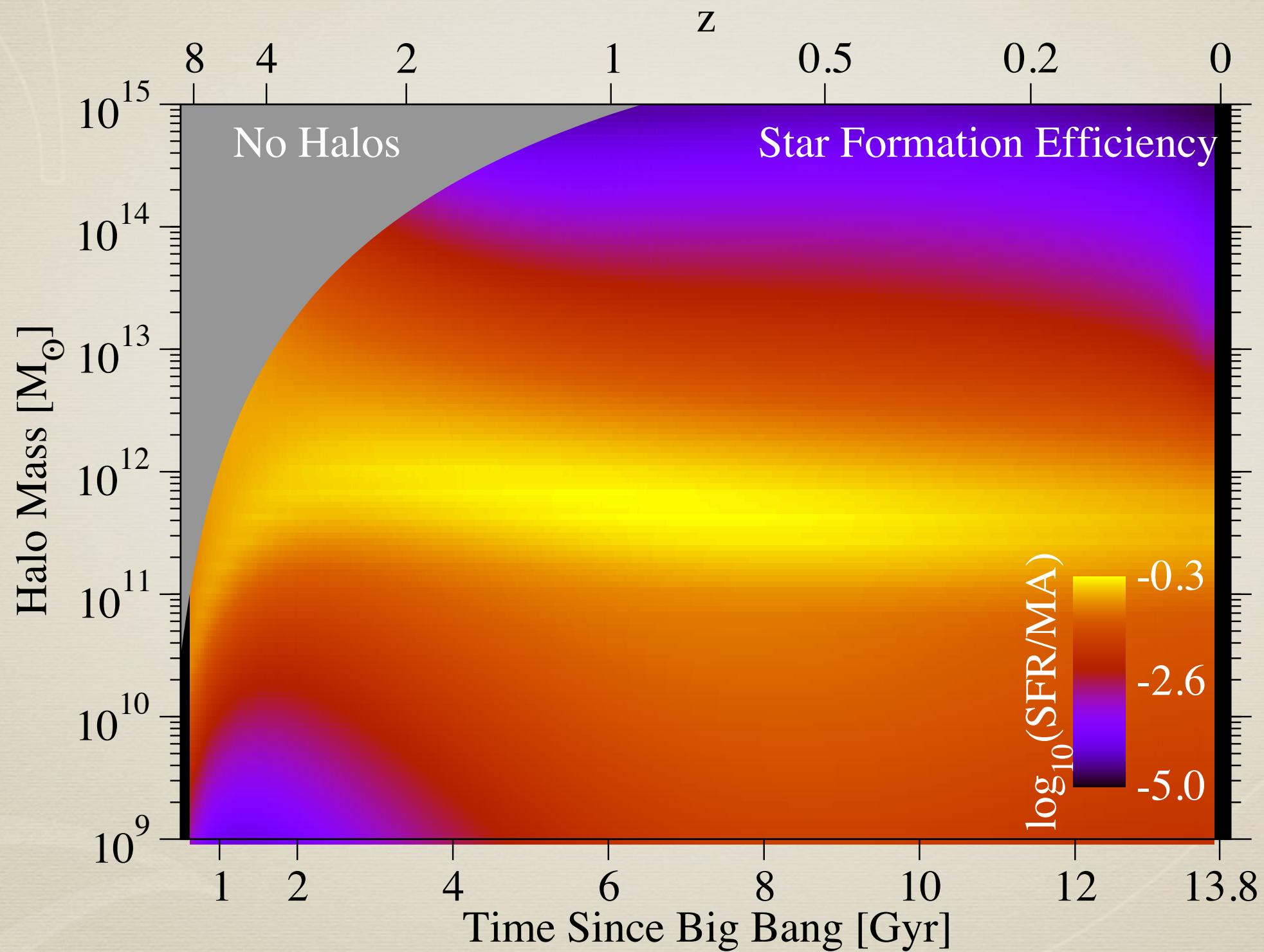
(Behroozi & Silk 2014; arxiv: 1404.5299)

High-Z Star Formation



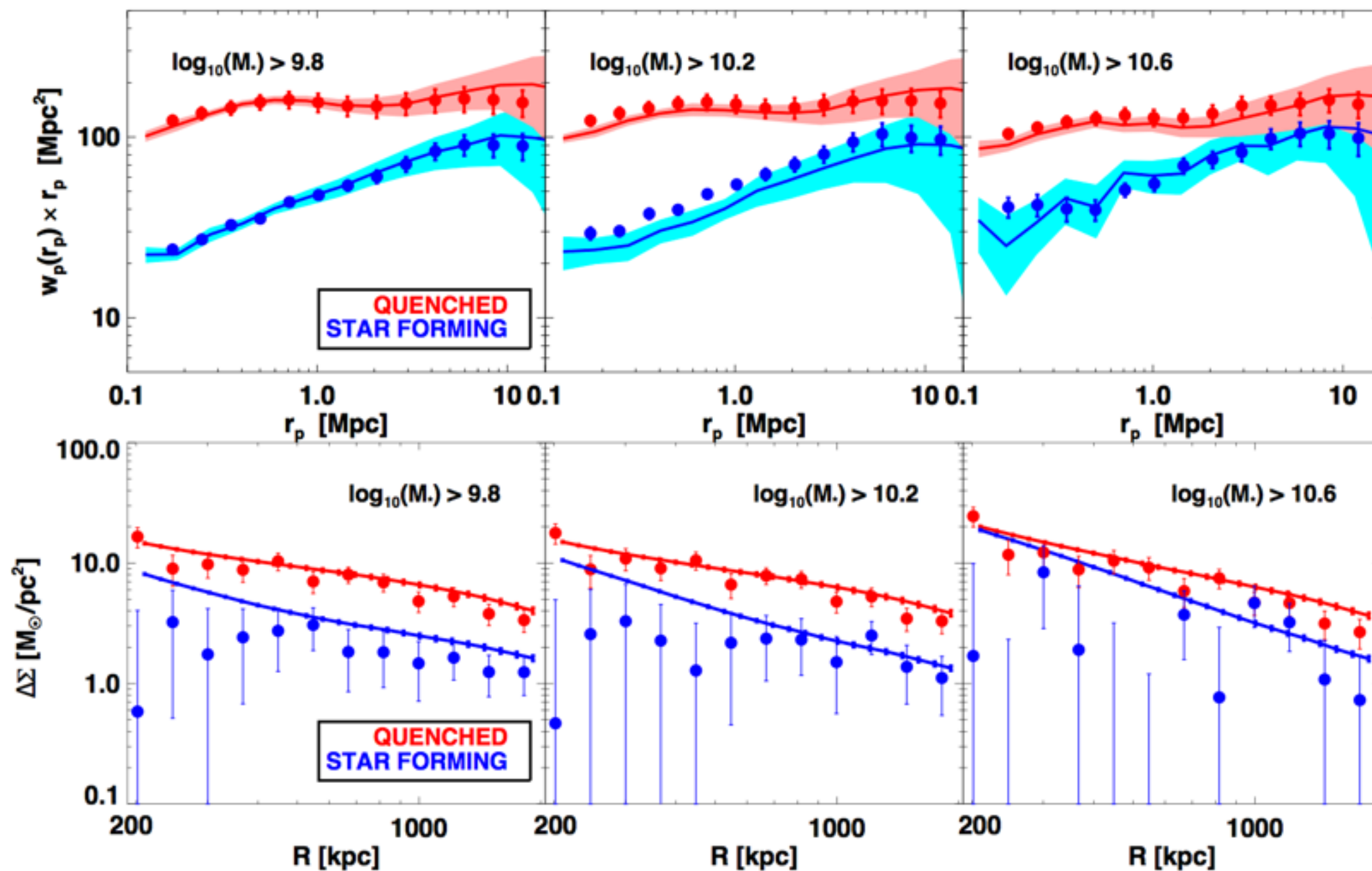
(Behroozi & Silk 2014; arxiv: 1404.5299)

Context



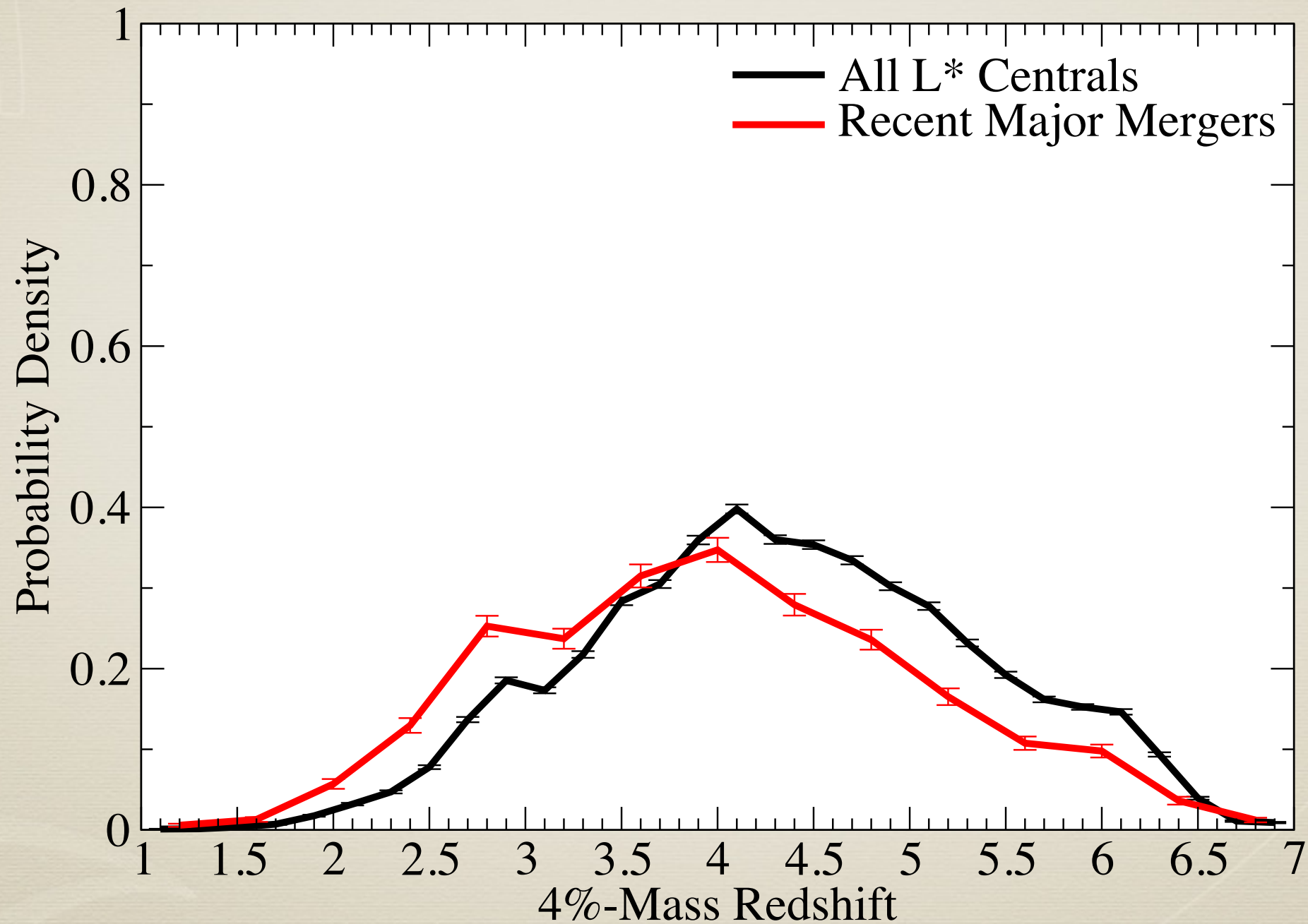
(Behroozi et al., 2013; arxiv: 1209.3013)

Context



(see Watson et al. 2014; arxiv: 1403.1578)

Context



(see Watson et al. 2014; arxiv: 1403.1578)

Question

Does quenching depend on recent halo accretion?

At all?

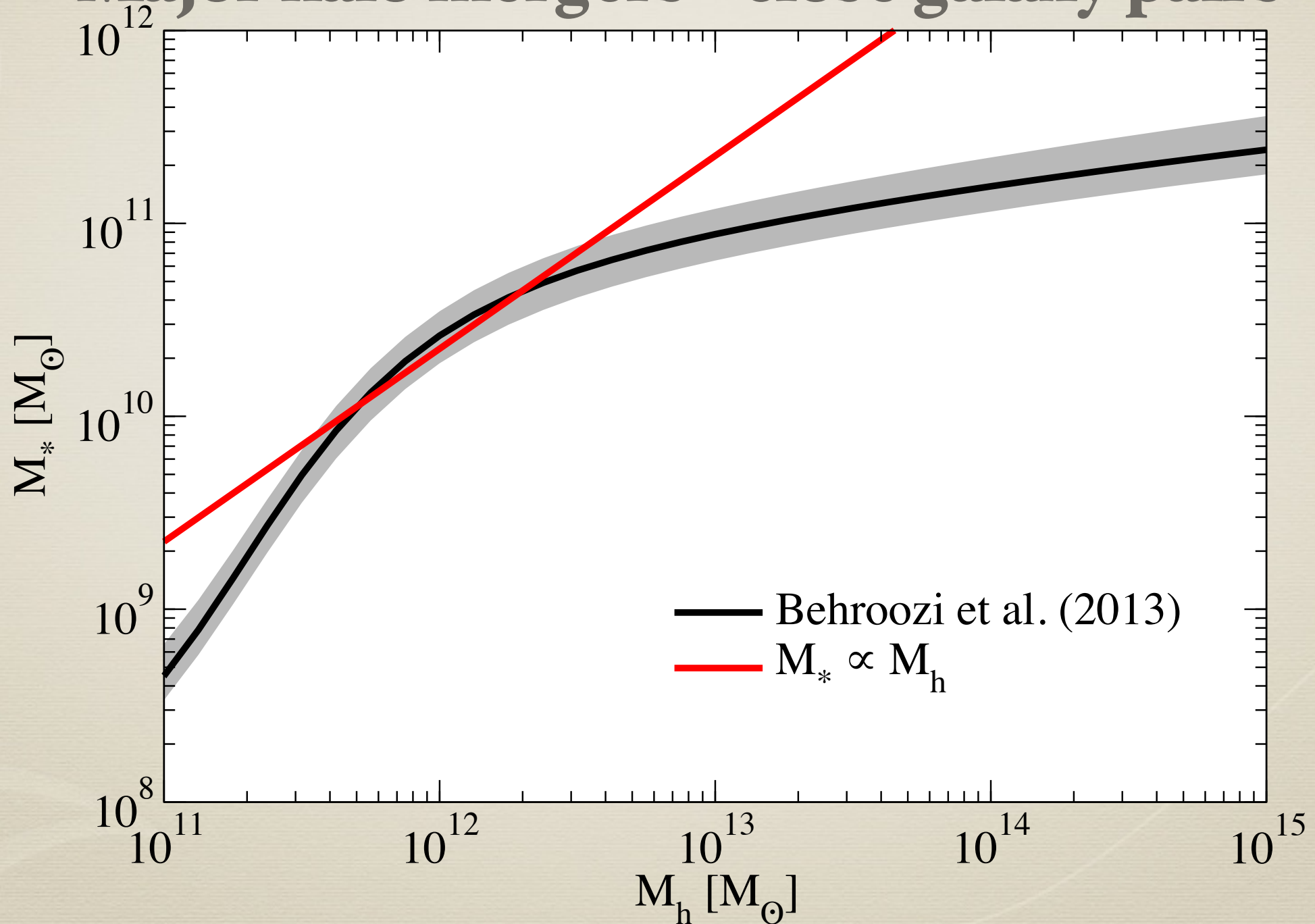
Idea

**Lots of extra accretion =
Major halo mergers = close galaxy pairs**



Idea

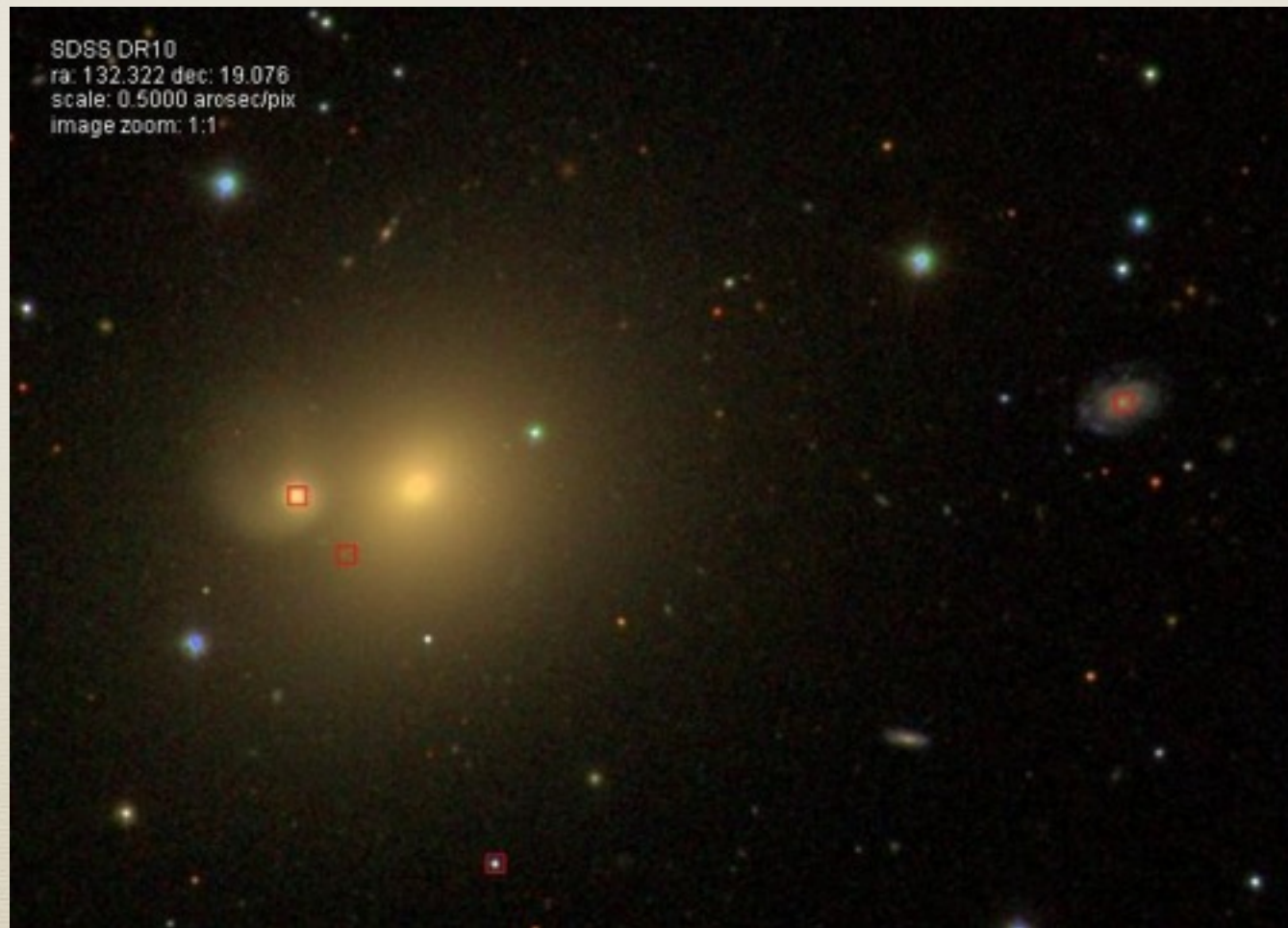
Major halo mergers = close galaxy pairs



Selection Criteria

Start with MPA-JHU Galaxy Properties (SDSS DR7)

Hosts: L^* Galaxies (10^{10} to $10^{10.5}$ M_{sun})
No larger galaxy within 500 kpc, 1000 km/s



Selection Criteria

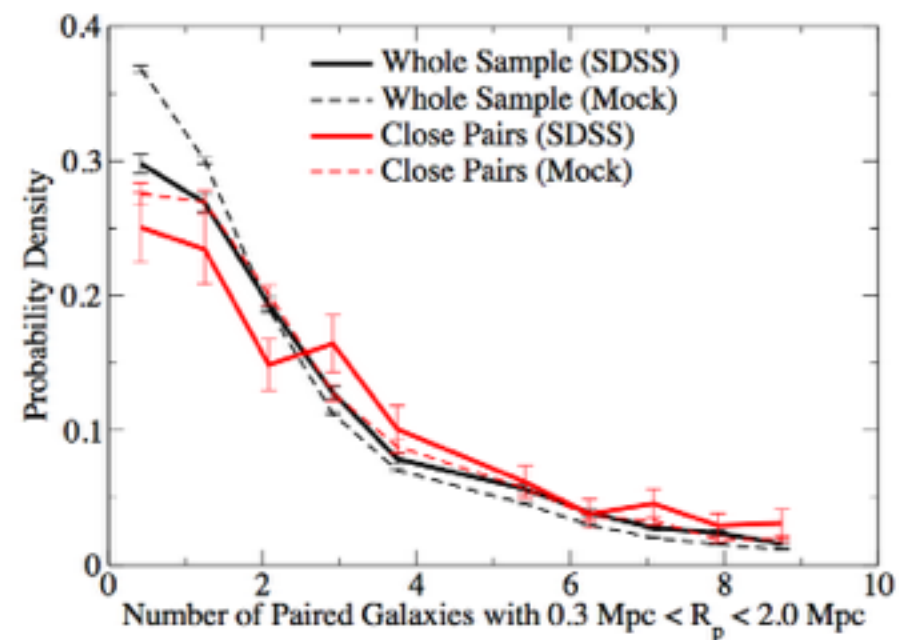
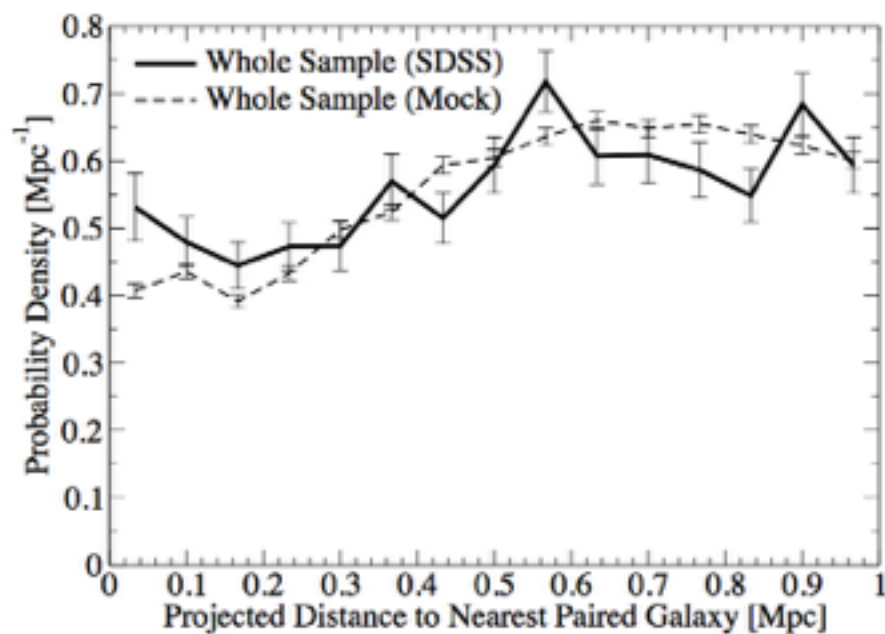
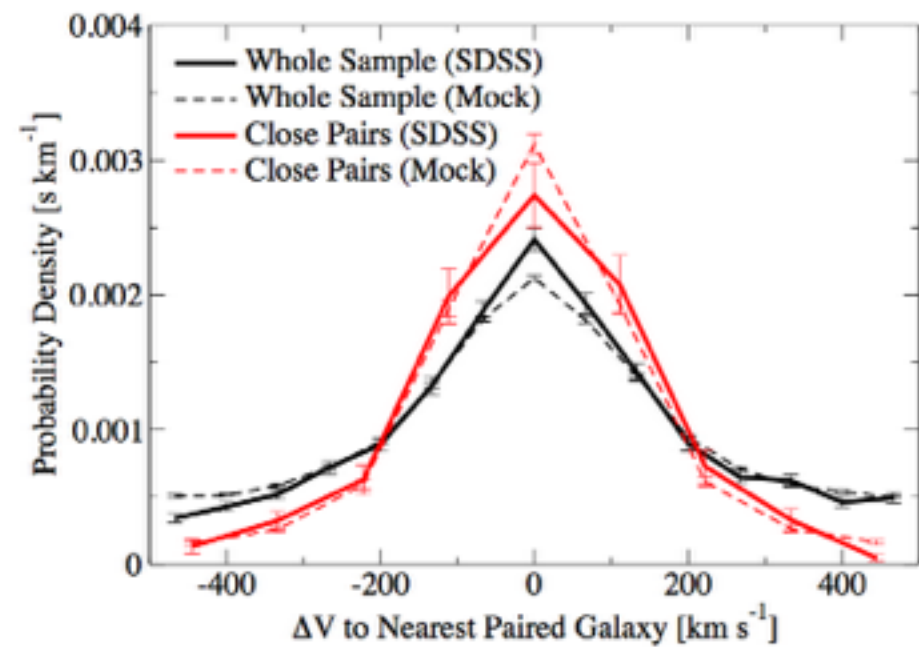
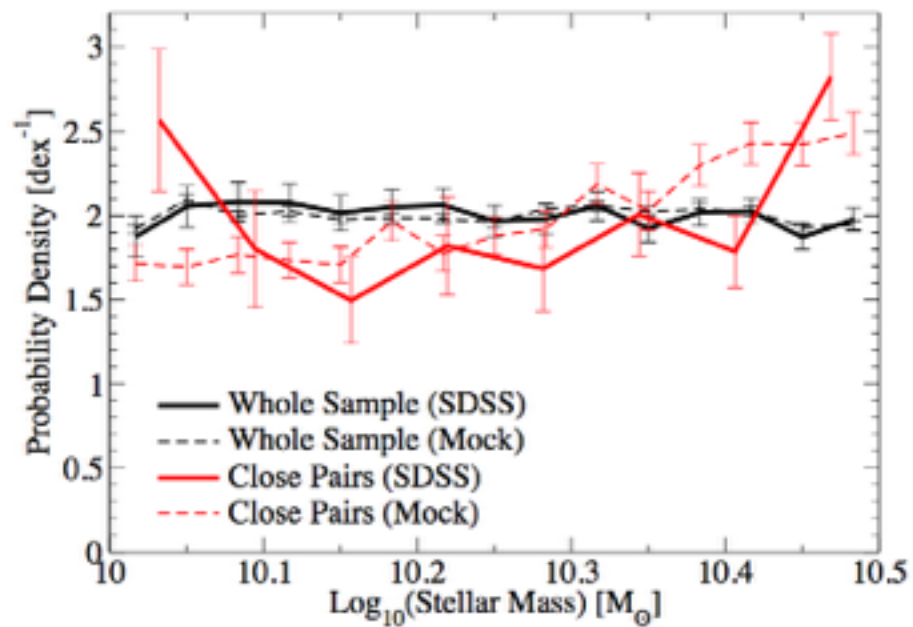
**Paired galaxy: within 0-0.5 dex smaller in SM,
within 500 km/s in redshift**

Close pair: paired galaxy within 200 kpc

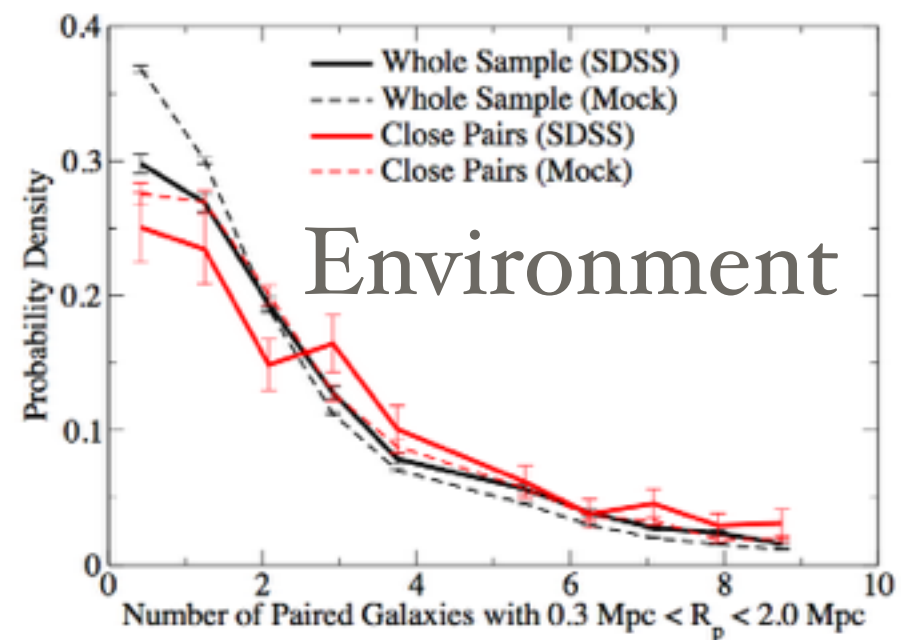
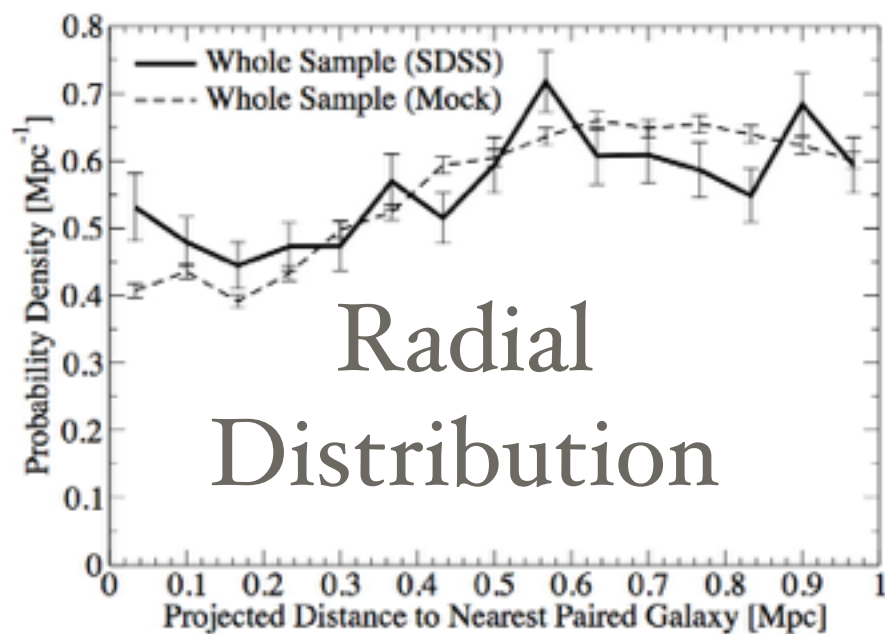
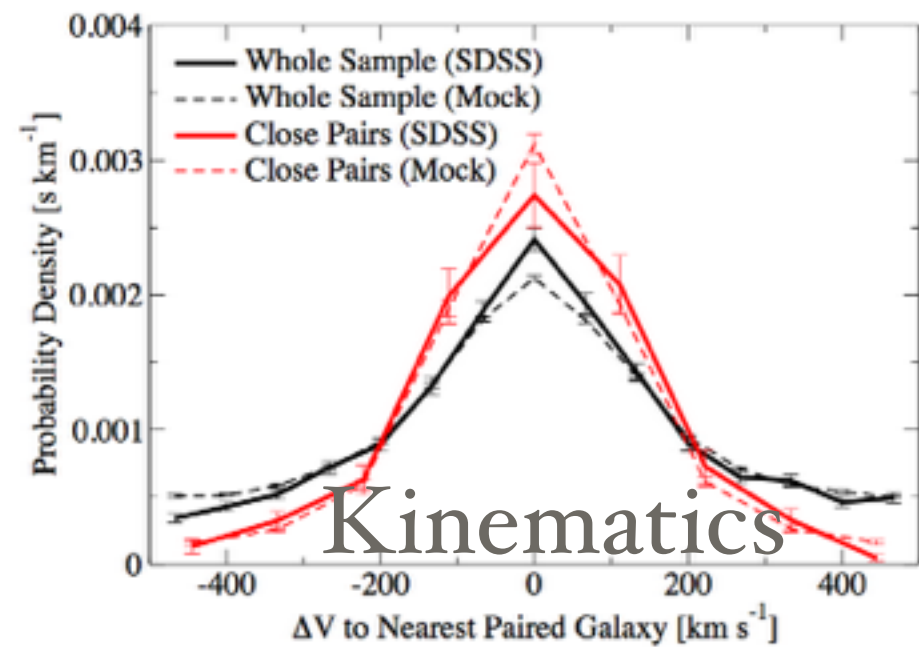
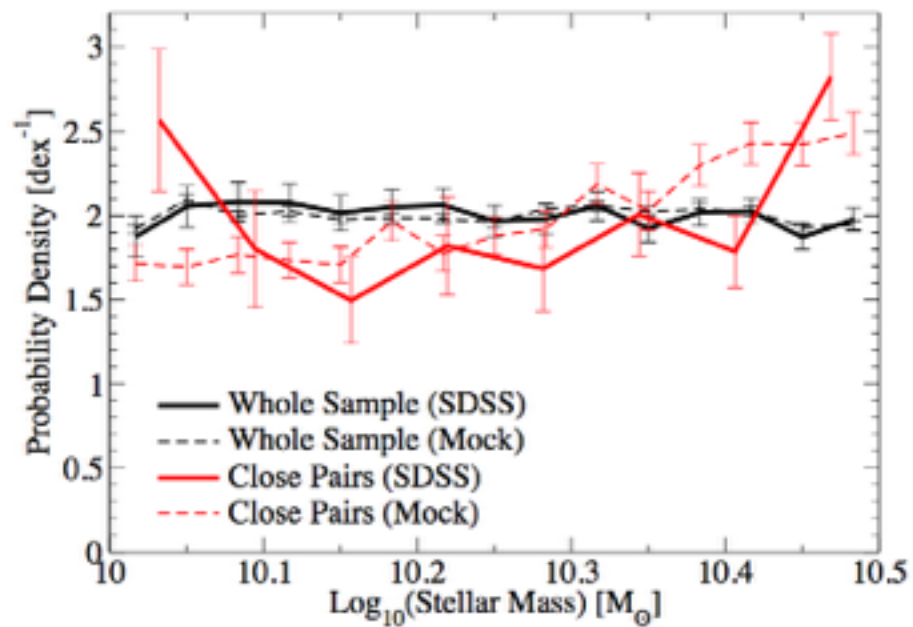


Closest pairs (40x40 kpc tiles)

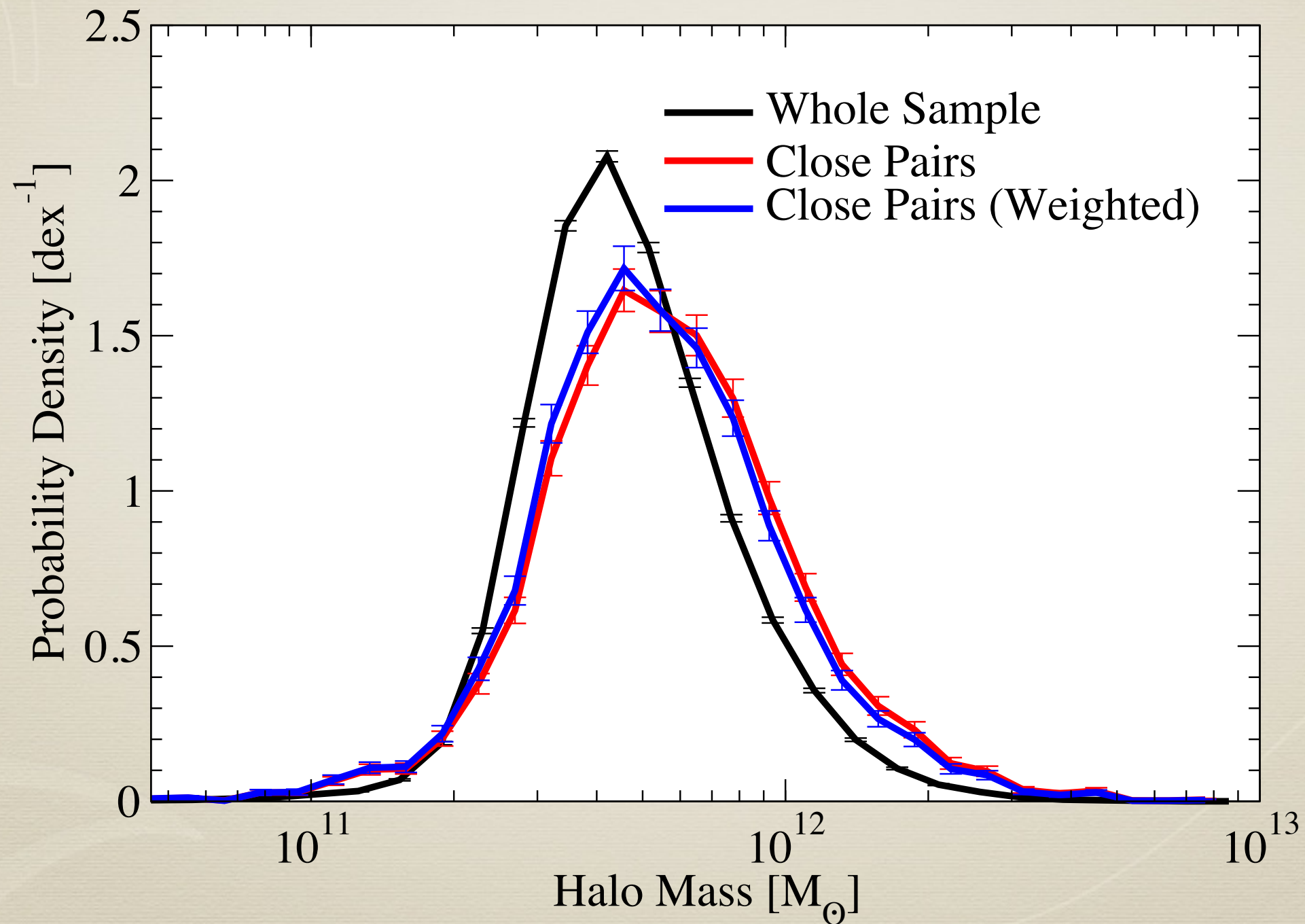
Mock Catalogs



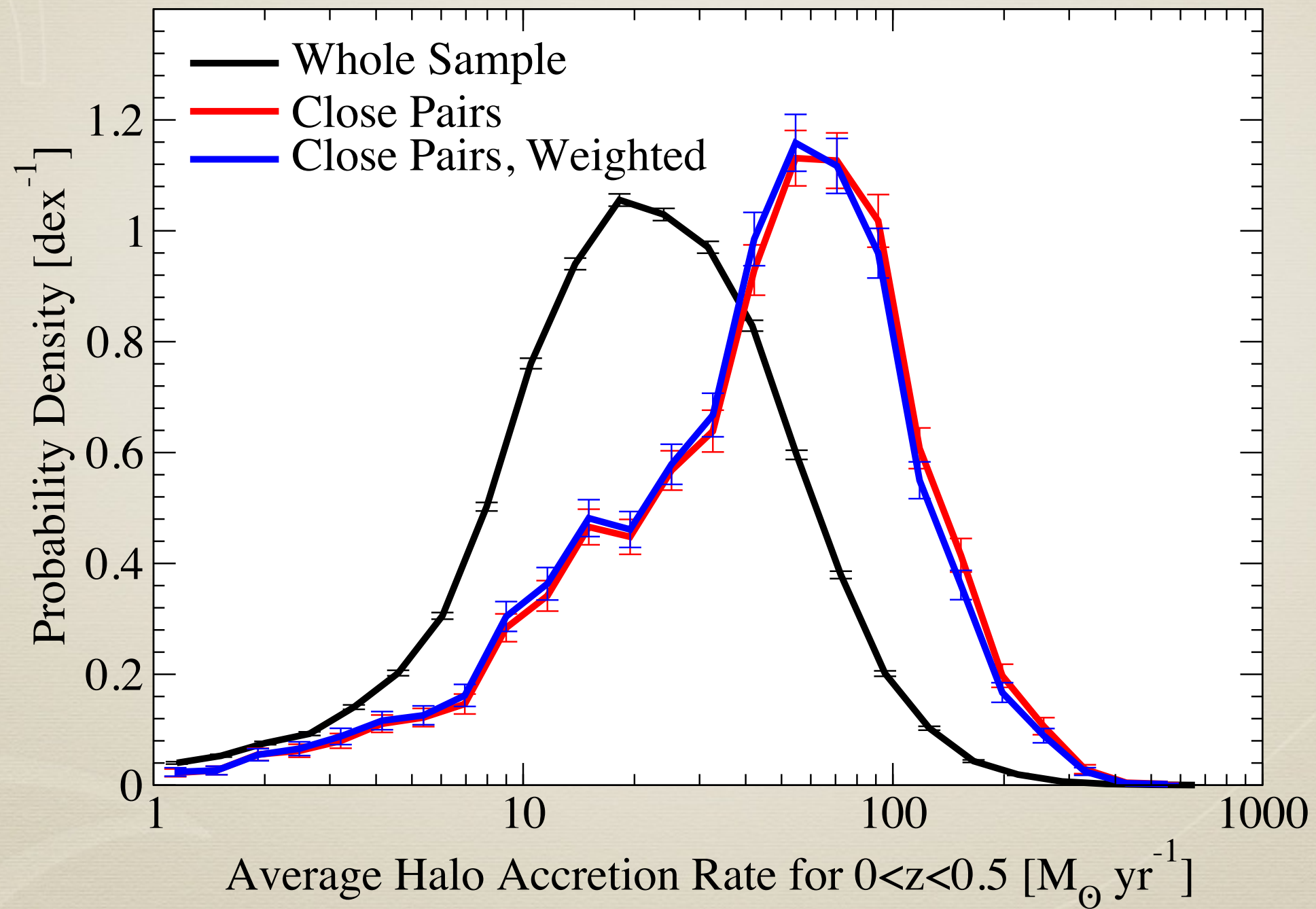
Mock Catalogs



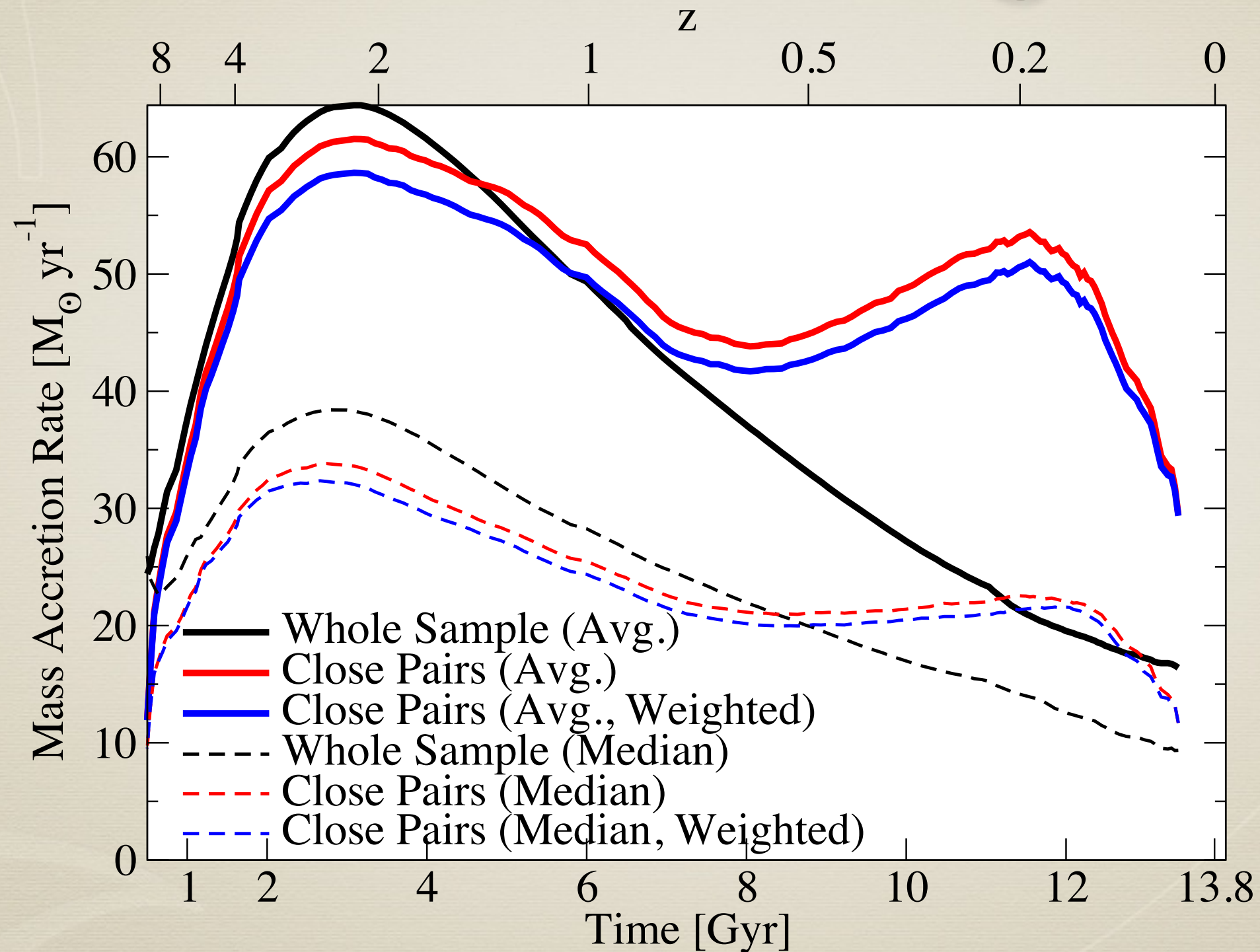
Mock Catalogs



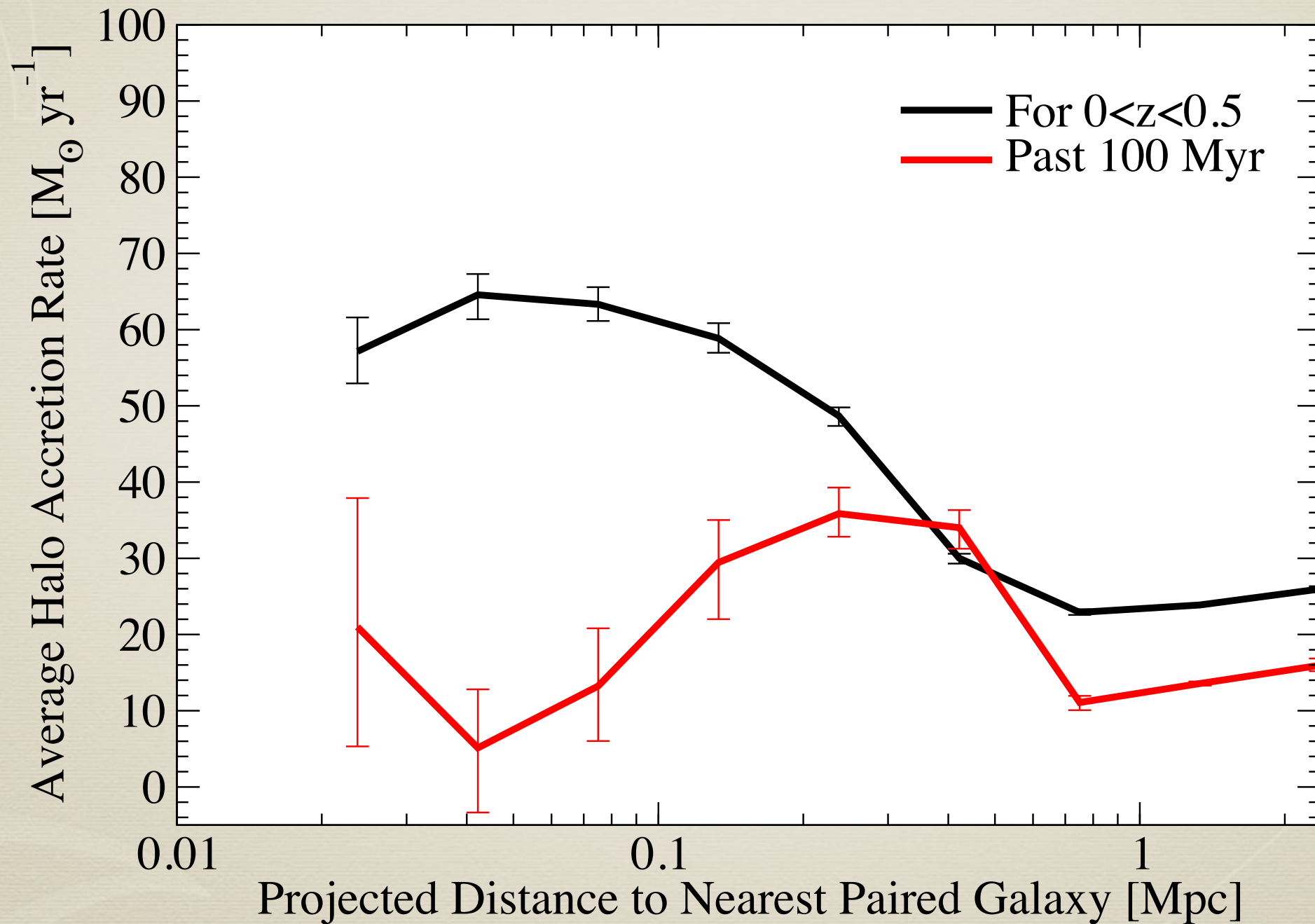
Mock Catalogs



Mock Catalogs



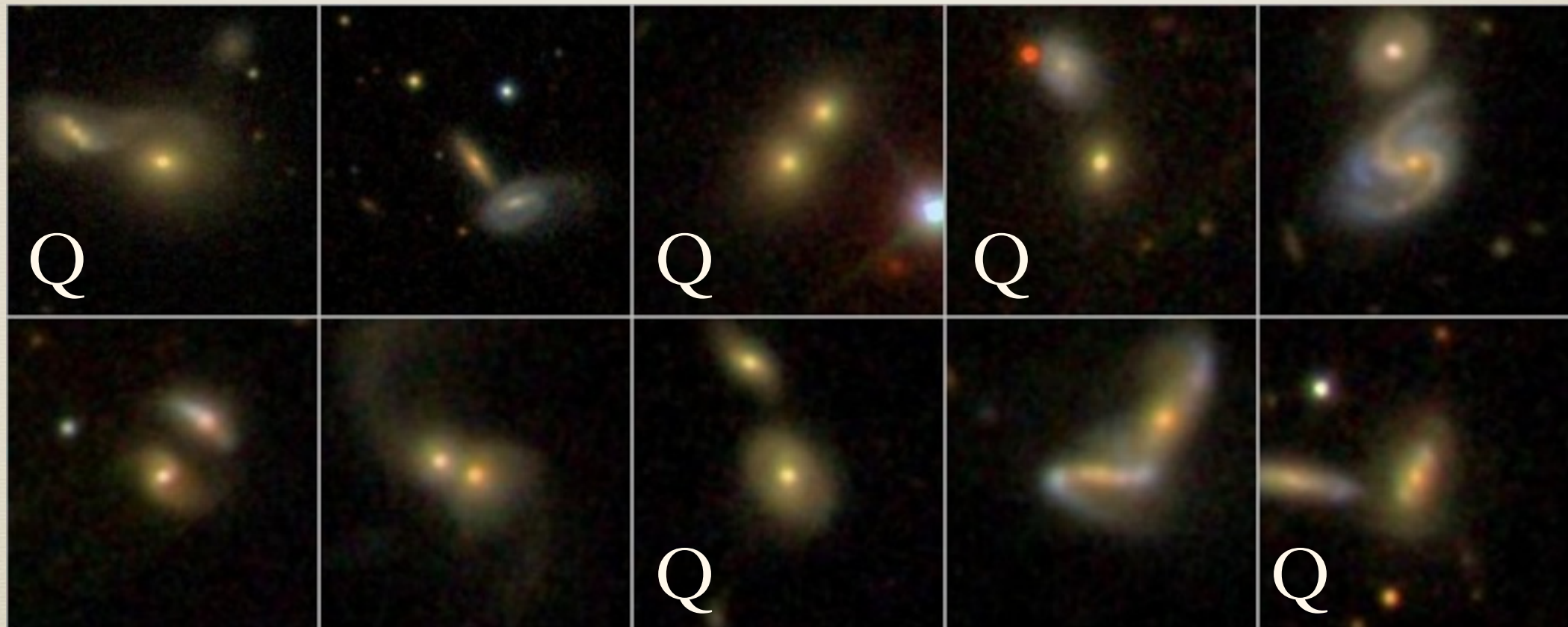
Mock Catalogs



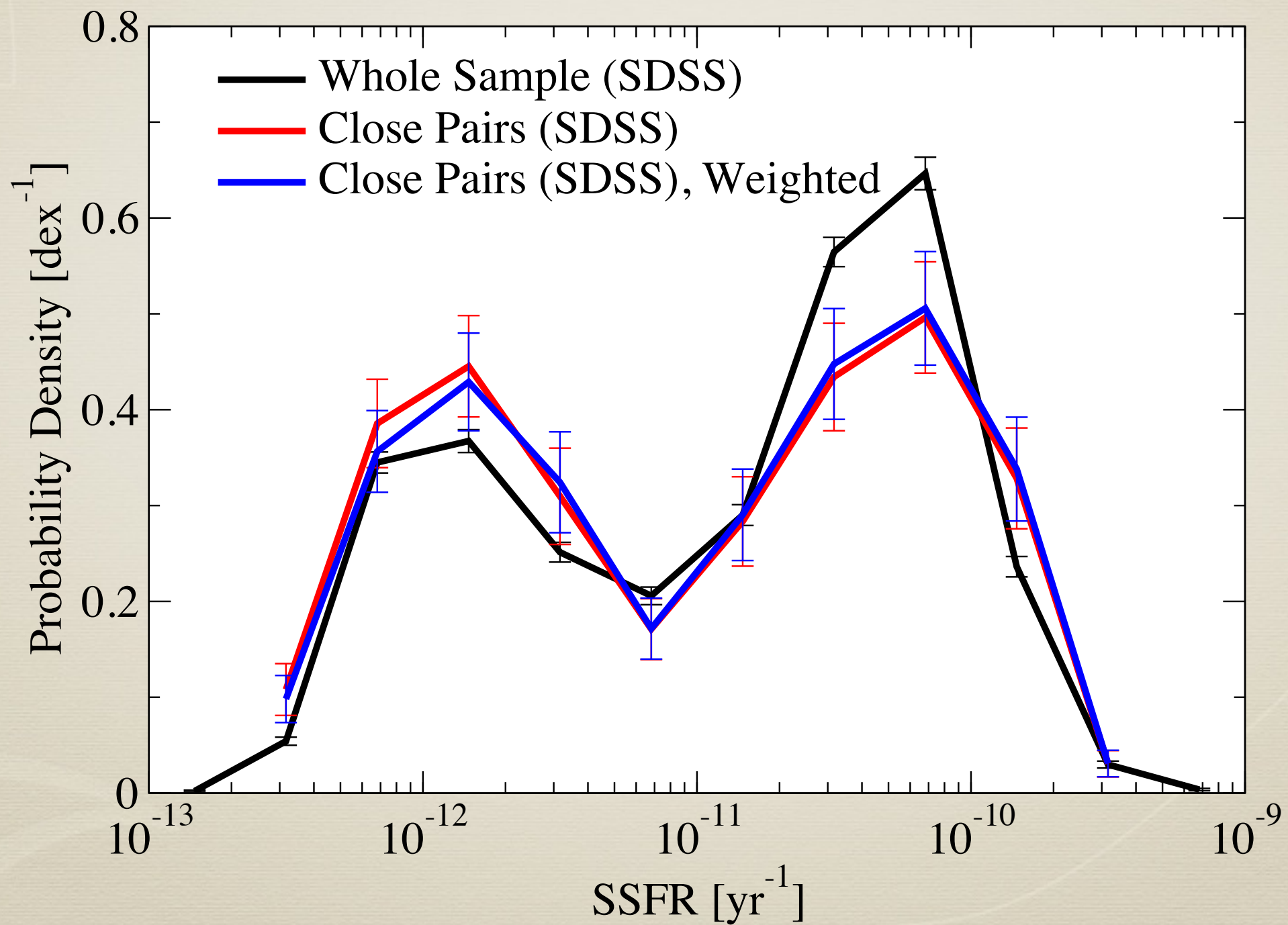
Results



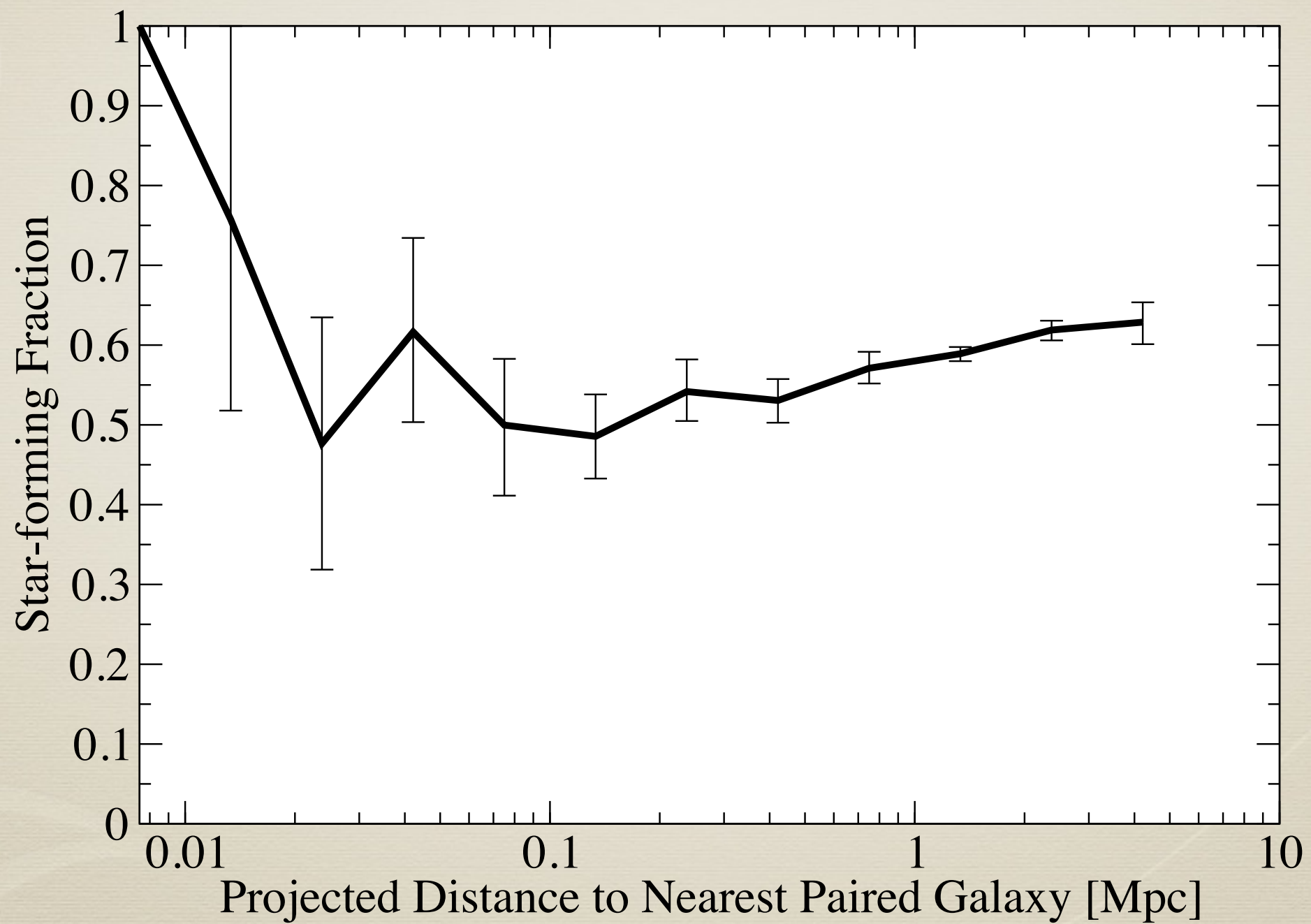
Results



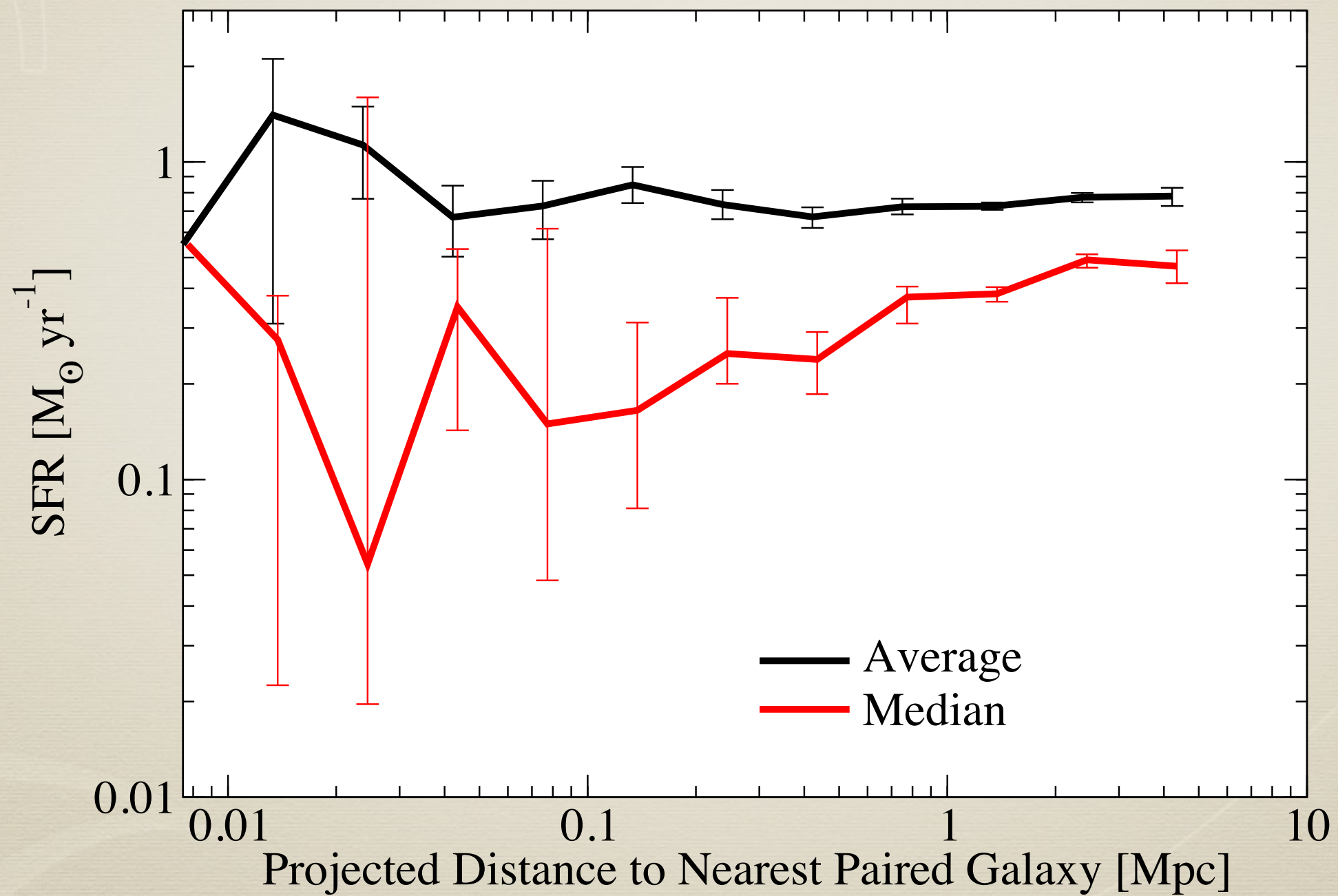
Results



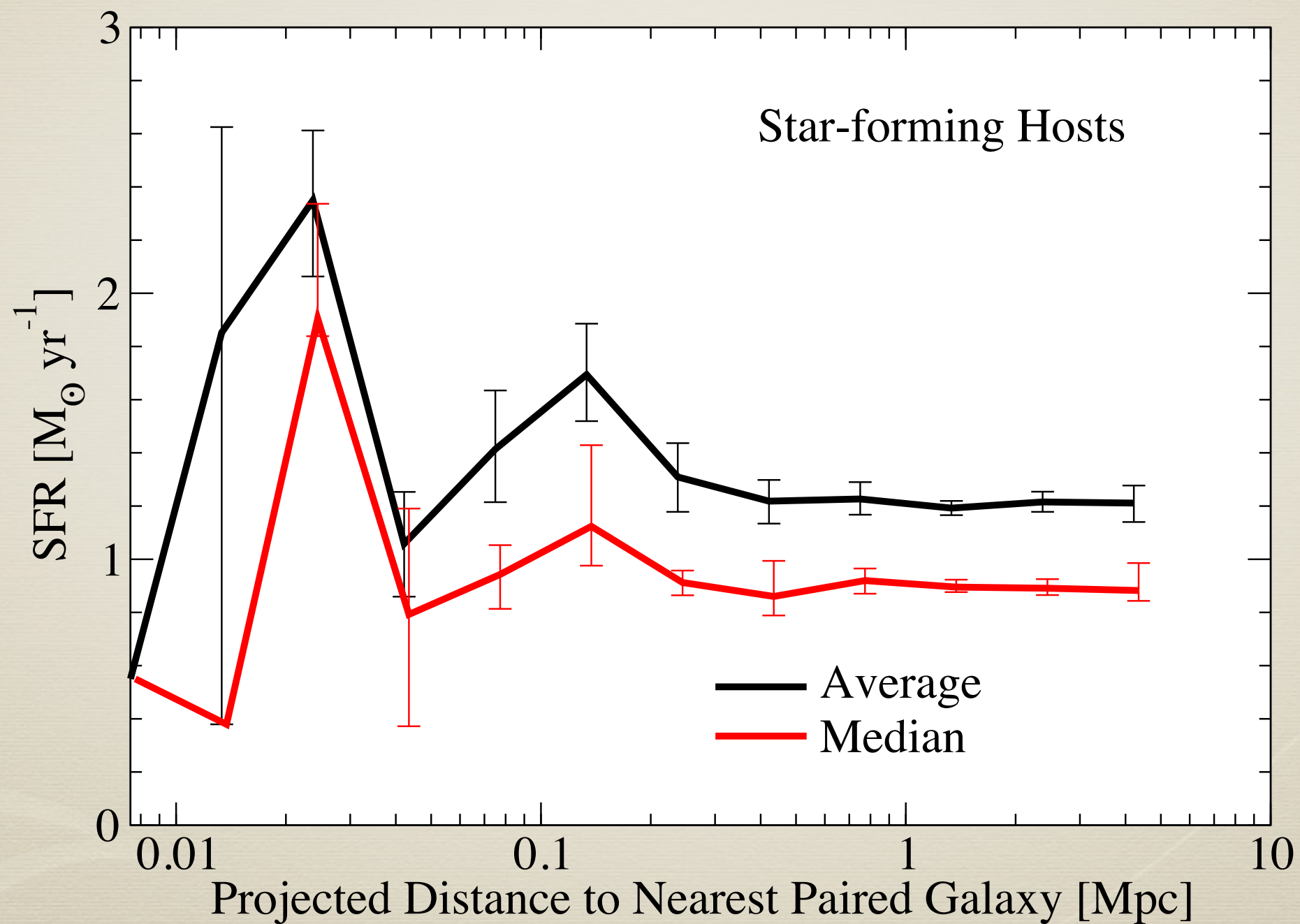
Results



Results

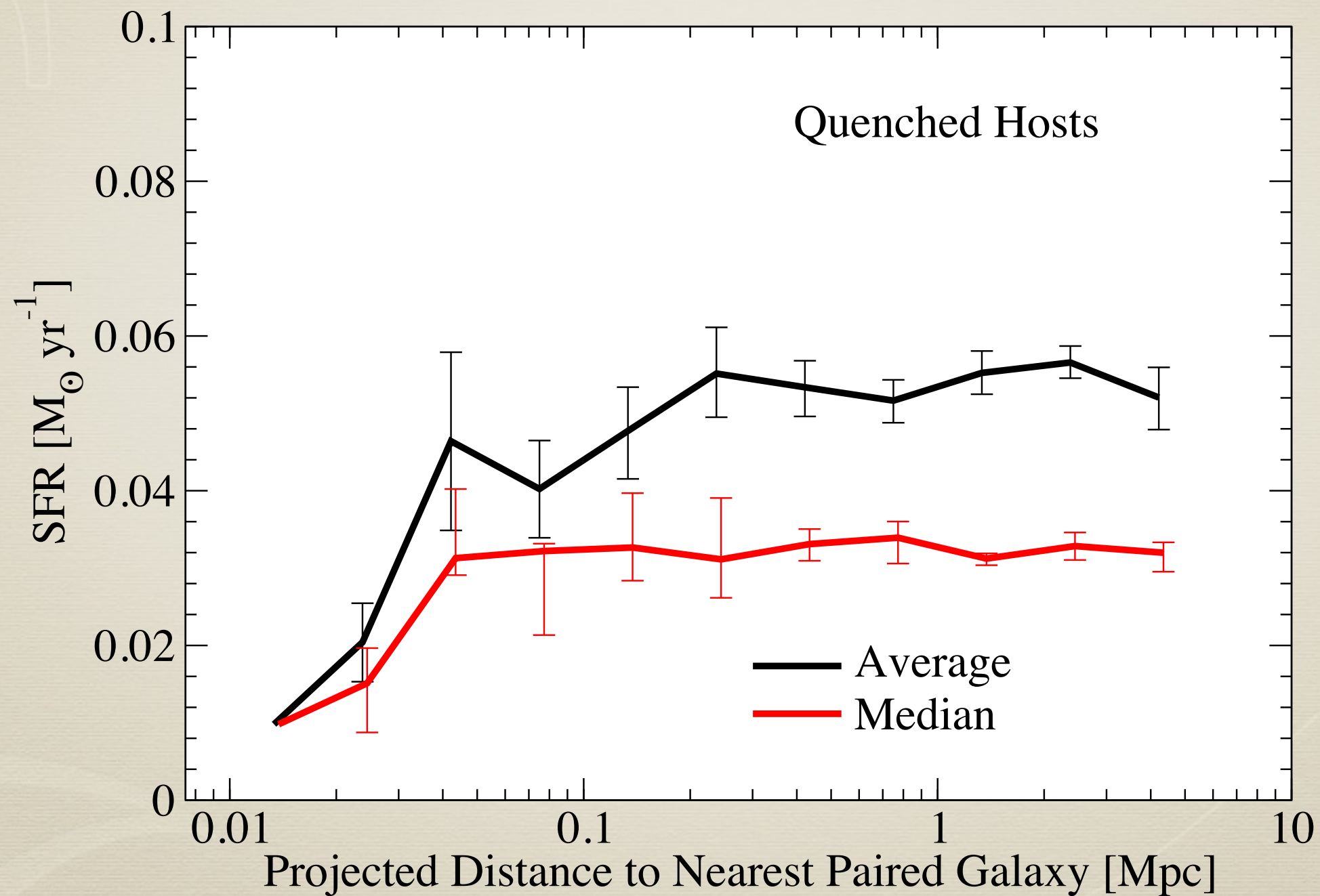


Results*



* = Cool, but I don't understand it yet!

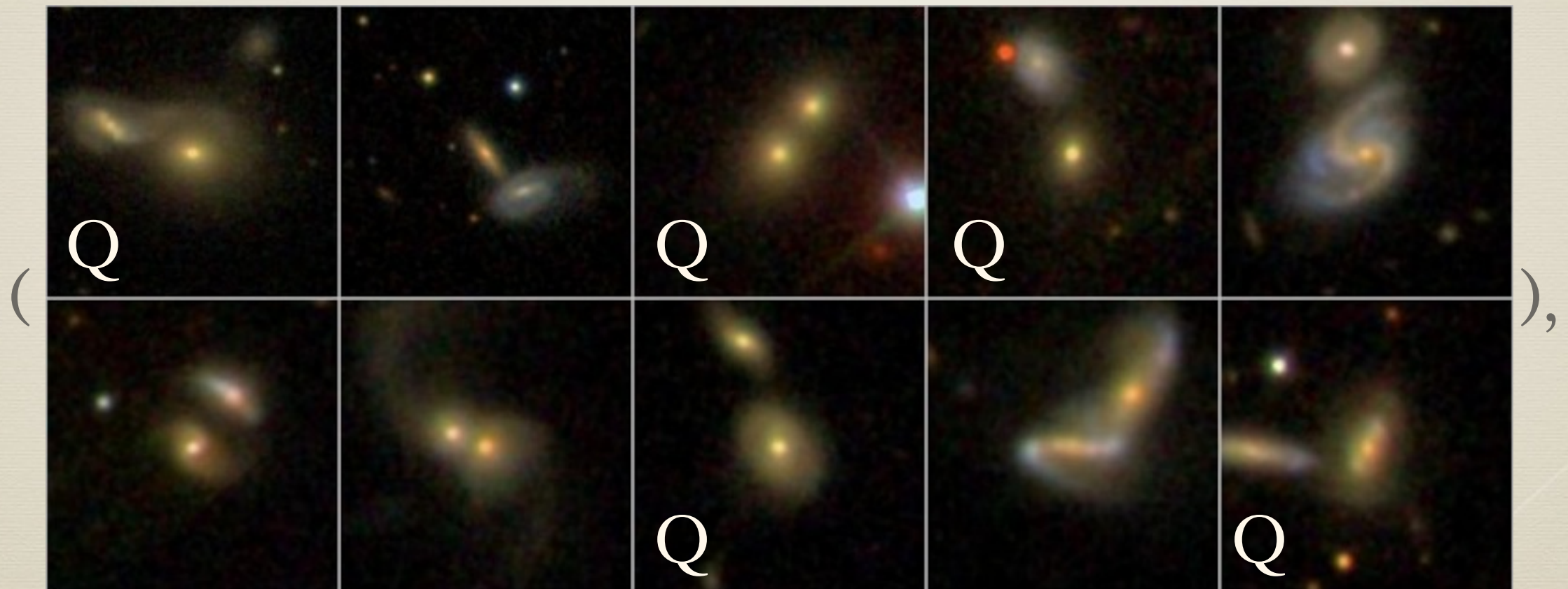
Results*



* = Cool, but I don't understand it yet!

Summary

No major SFR enhancement for increased halo accretion rates



but interesting double-peak enhancement for SF galaxies!