

STELLAR PROFILES OF MASSIVE GALAXIES:

Hyper Suprime-Cam Survey

vs.

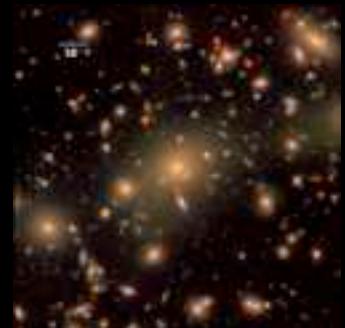
Hydrodynamic Simulations

Felipe Ardila

Alexie Leauthaud, Song Huang,

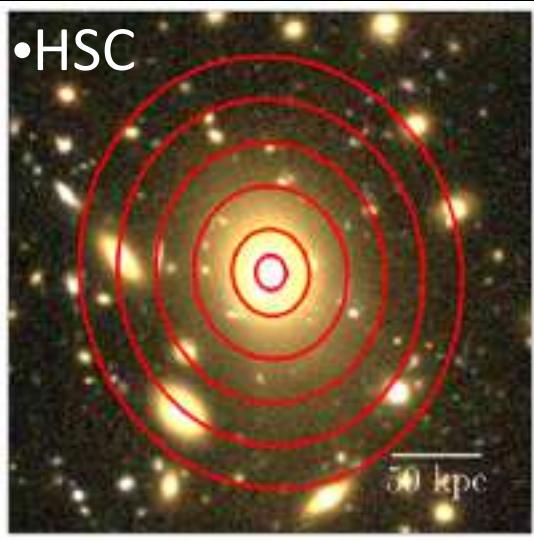
Benedikt Diemer, Annalisa Pillepich,

Piero Madau, Lucio Mayer, Ananth Tenneti,
HSC Collaboration, IllustrisTNG Collaboration



Observations

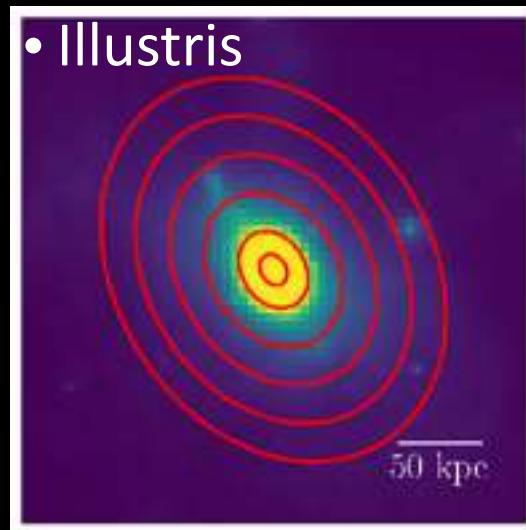
integrated
light



Consistent methodology
between observations
and simulations
(Huang et al. 2018)

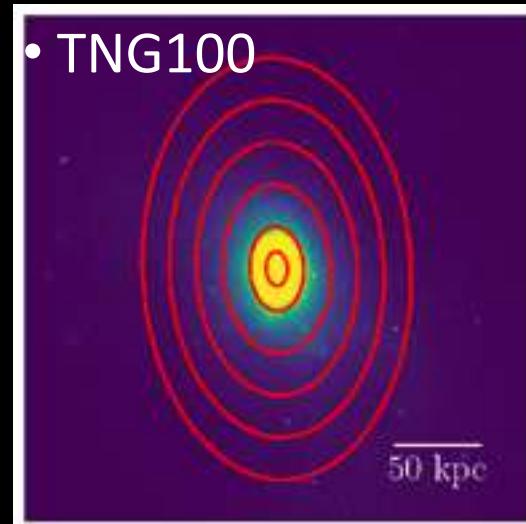
Hydrodynamic Simulations

• Illustris

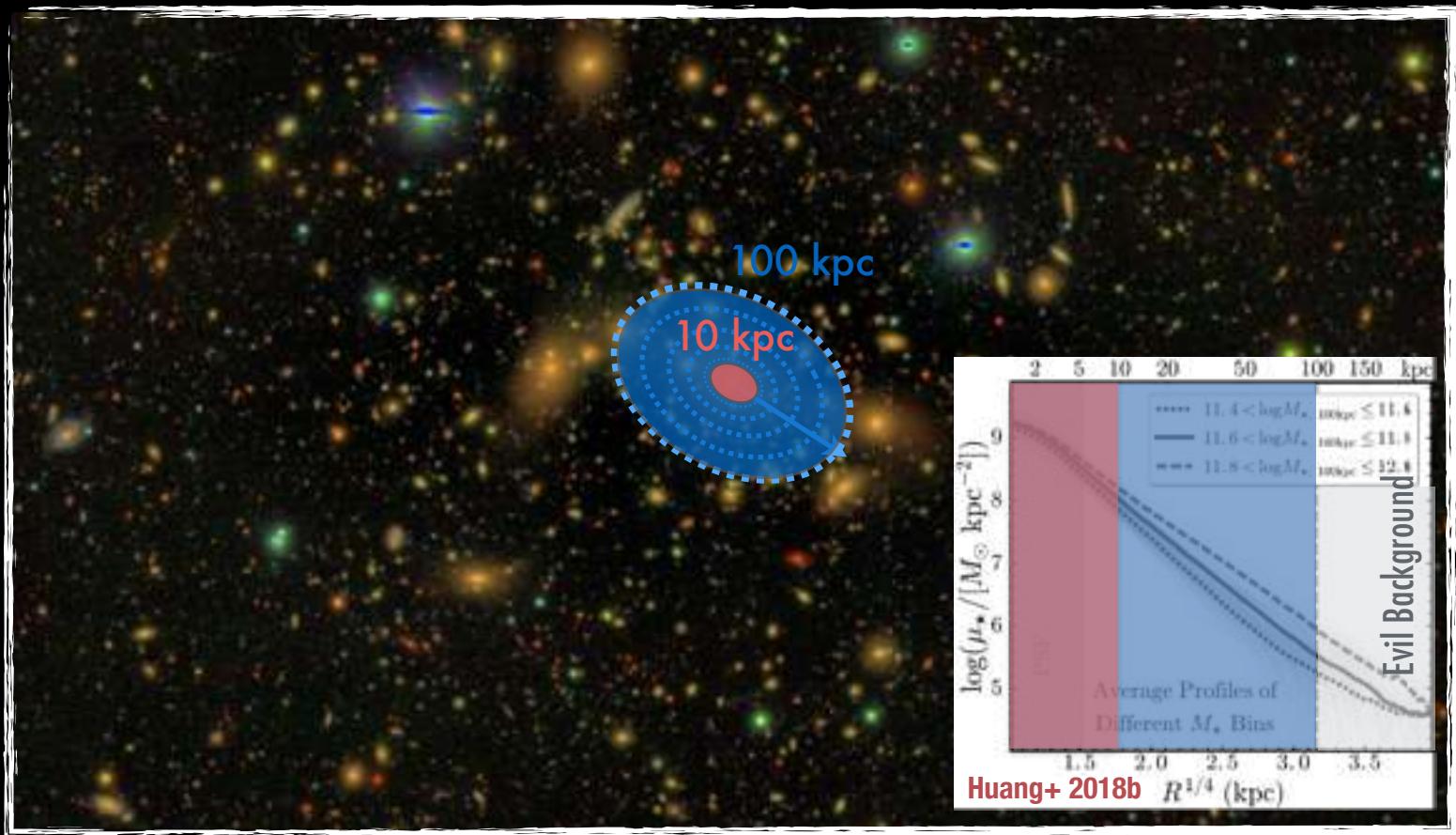


stellar
mass
maps

• TNG100

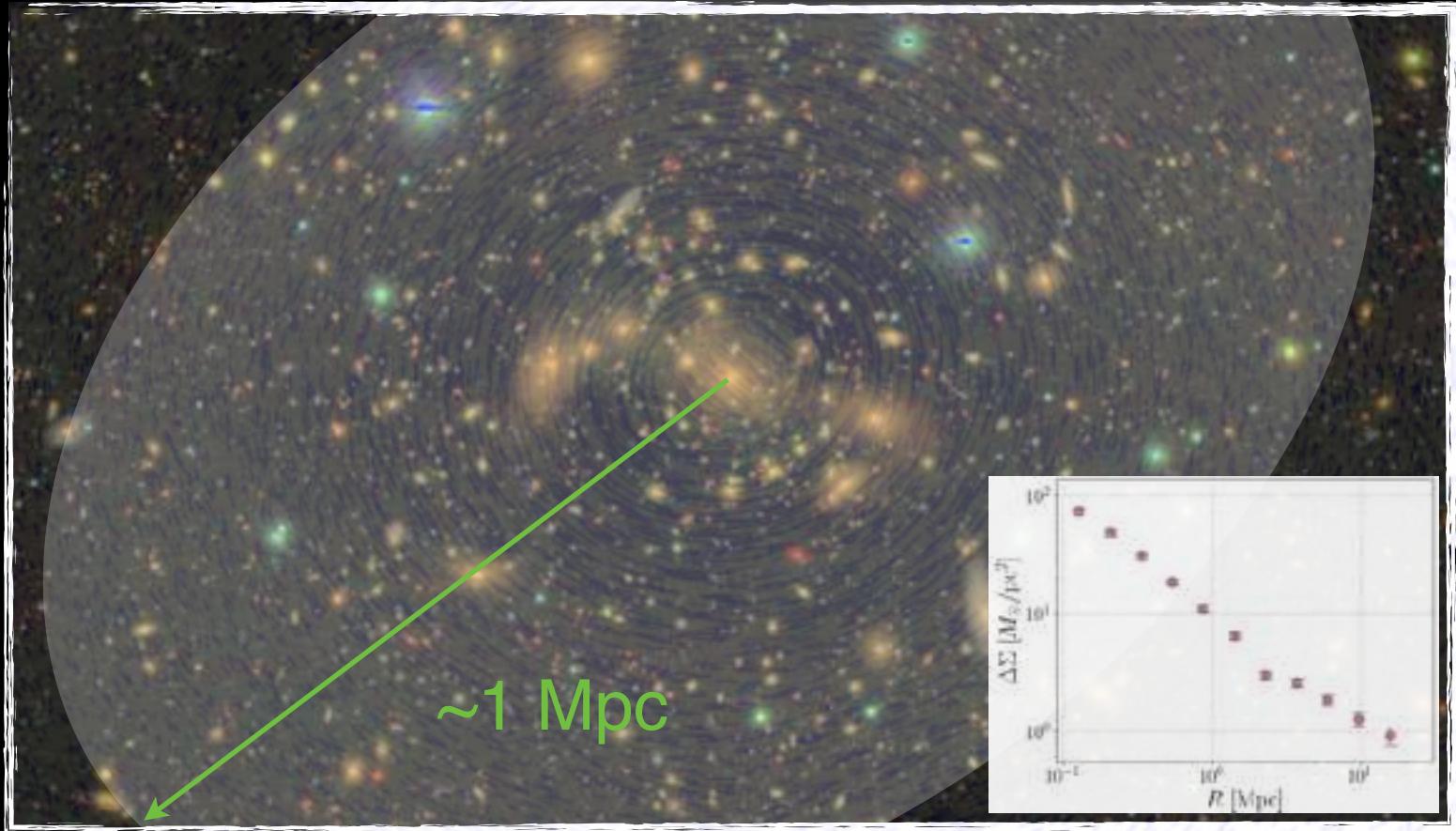


Mass Measurements



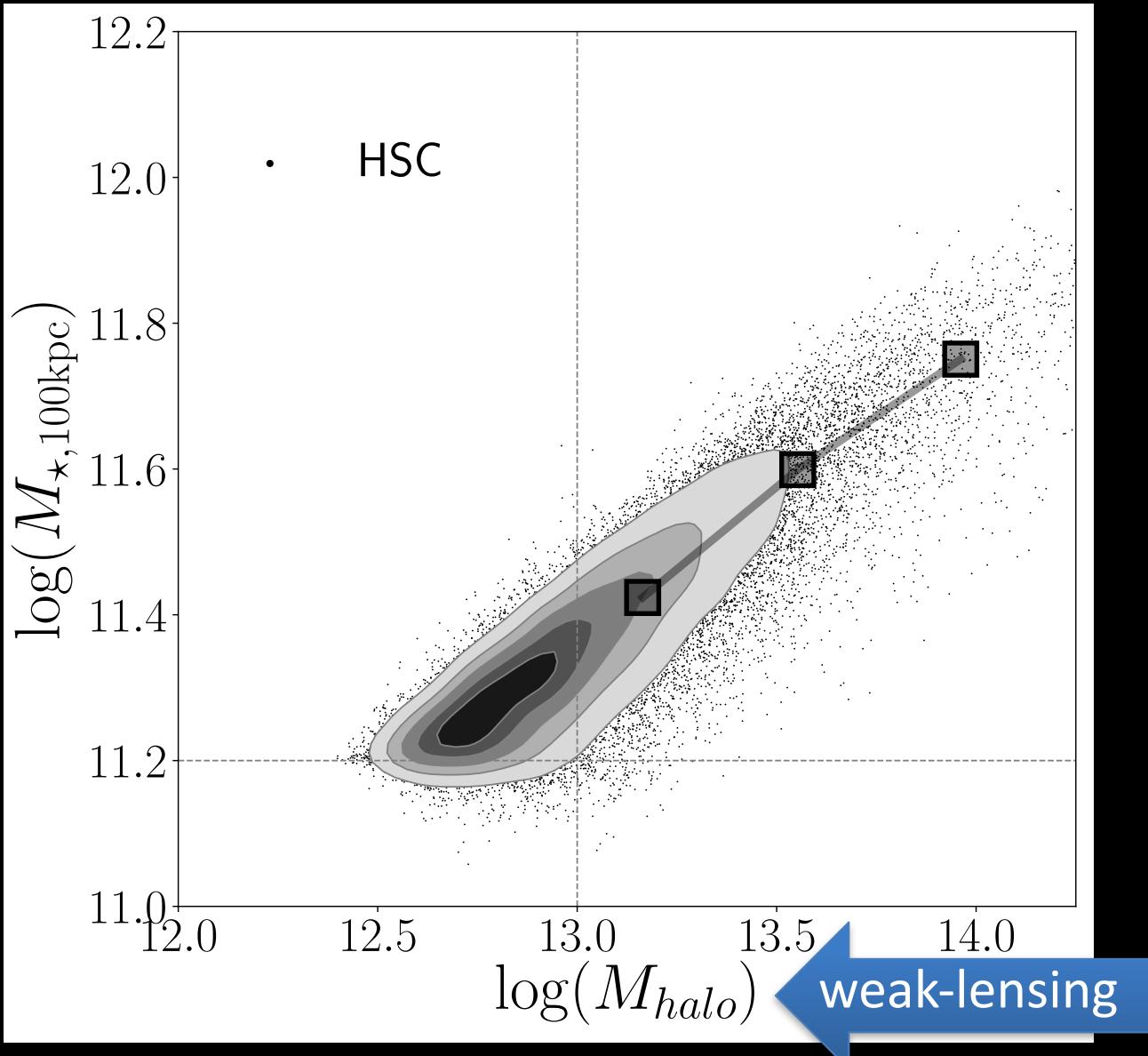
From Song Huang's talk

Mass Measurements

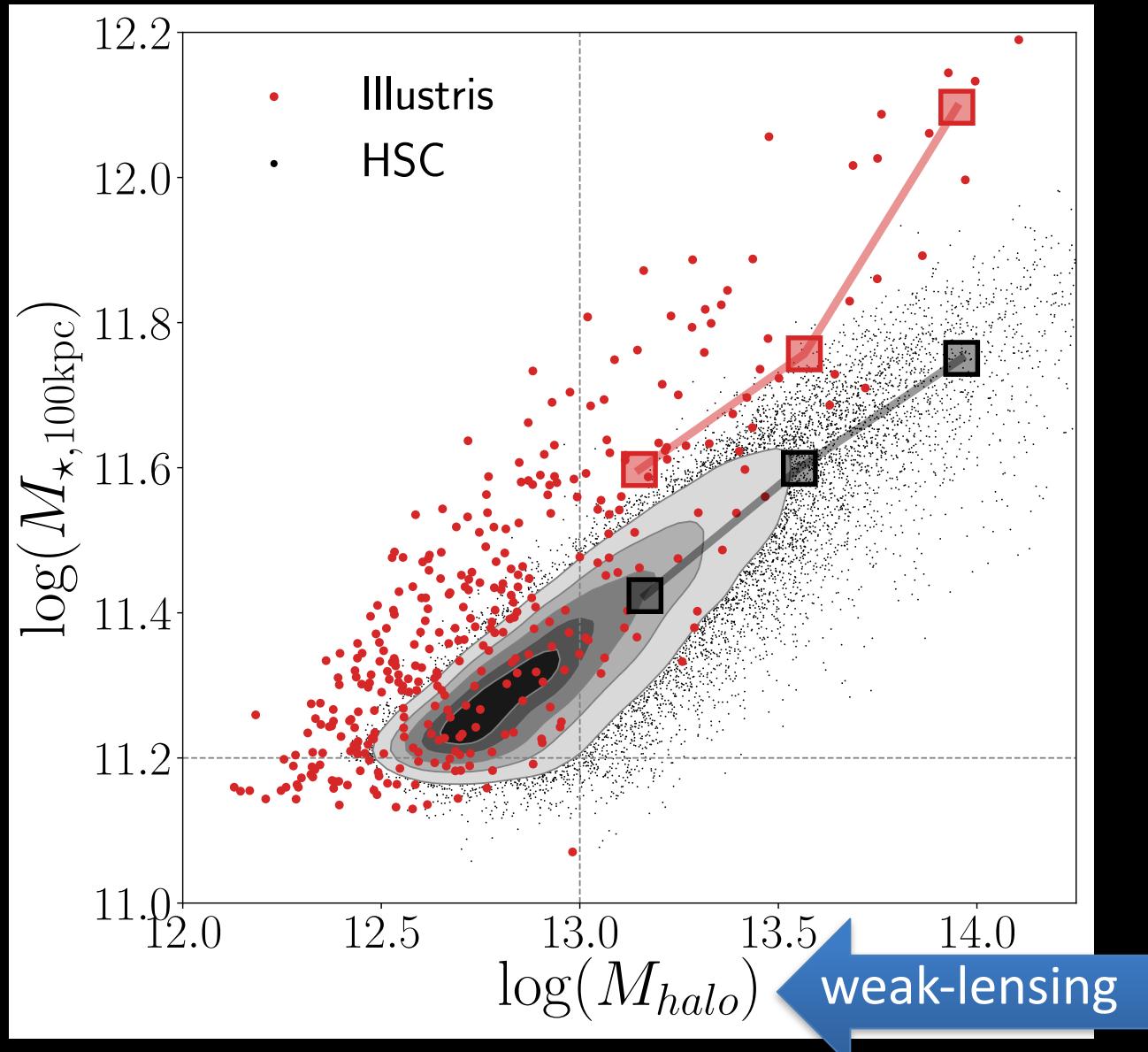


From Song Huang's talk

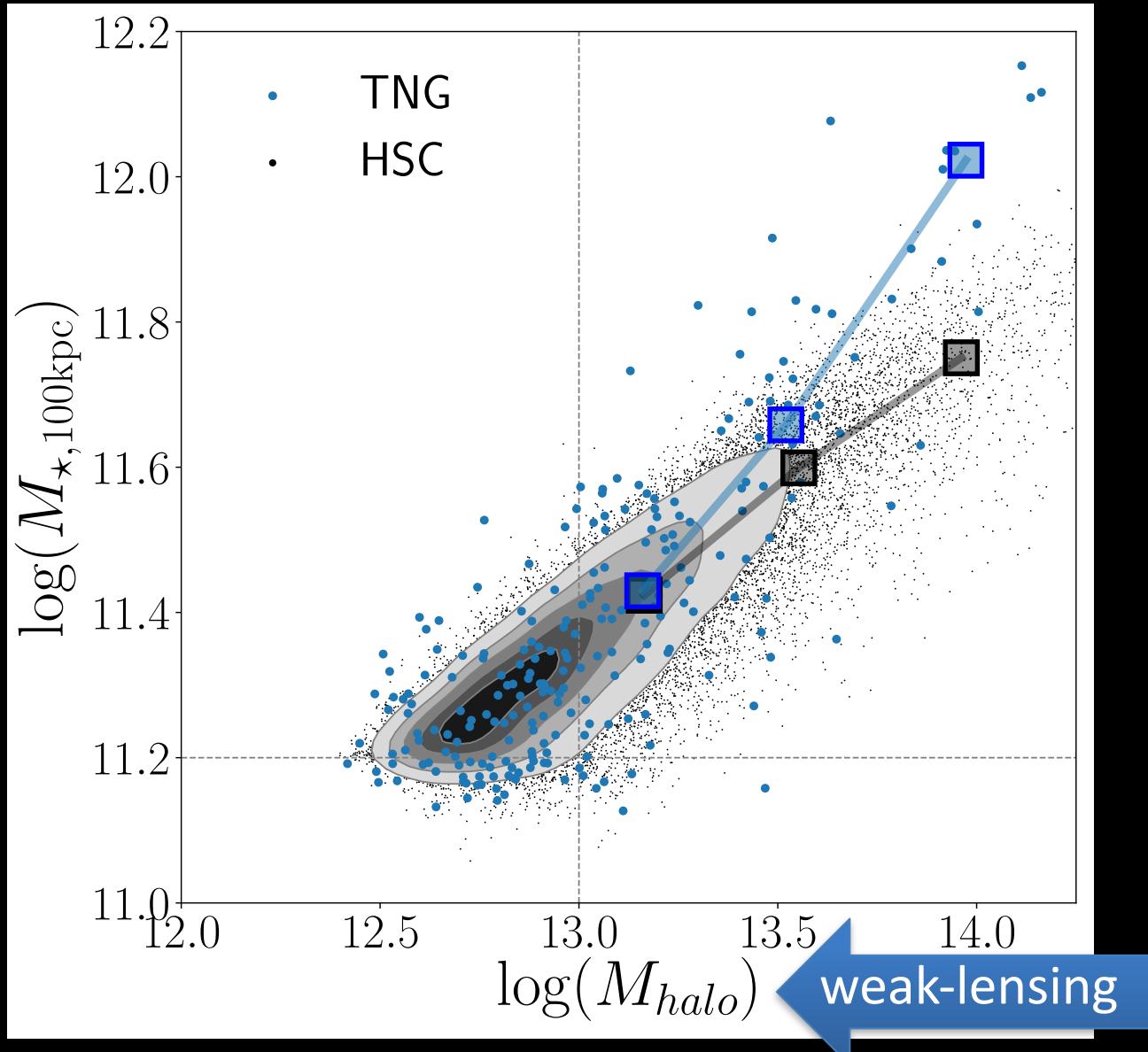
$M_{\star}^{100\text{kpc}}$ vs. M_{halo}



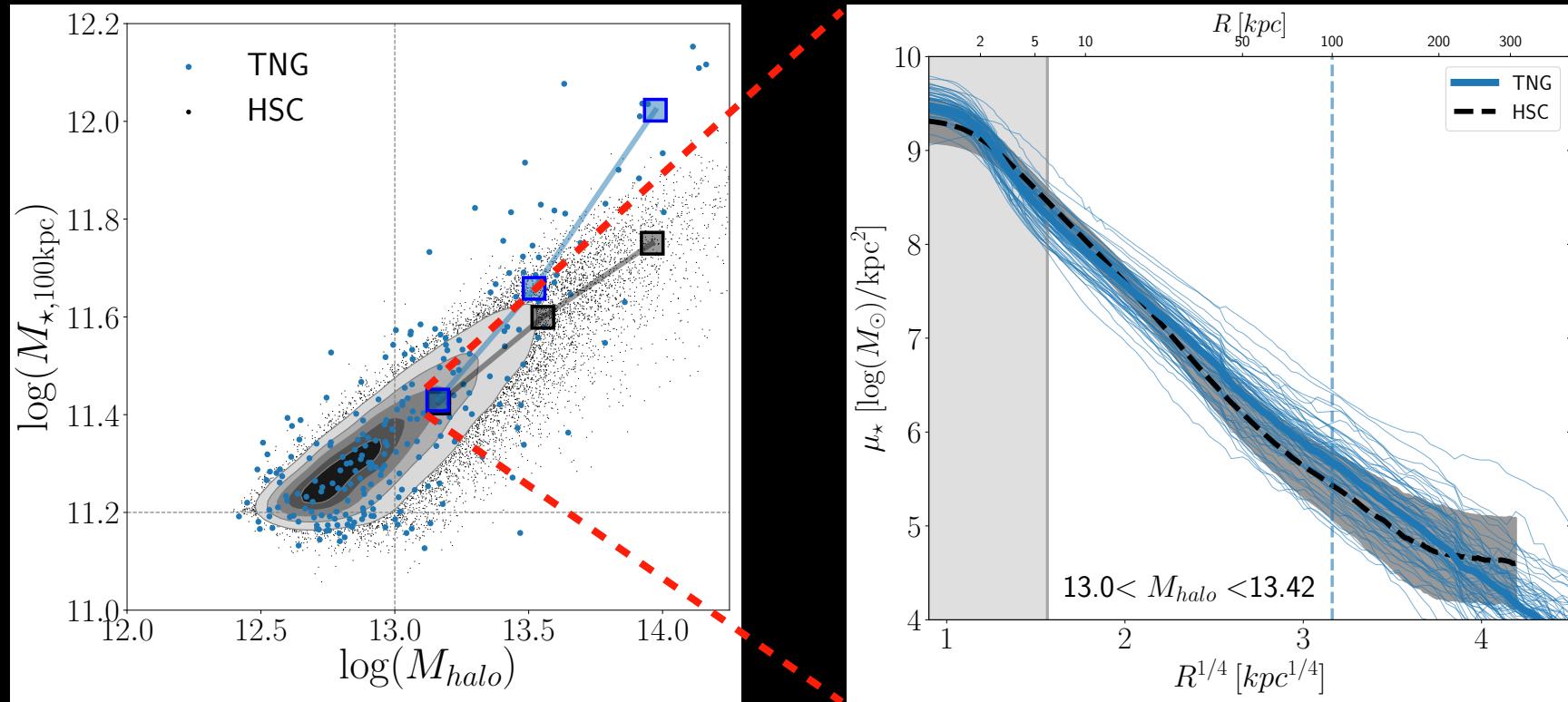
$M_{\star}^{100\text{kpc}}$ vs. M_{halo}



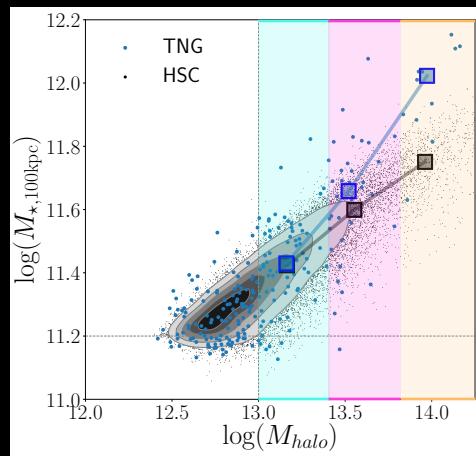
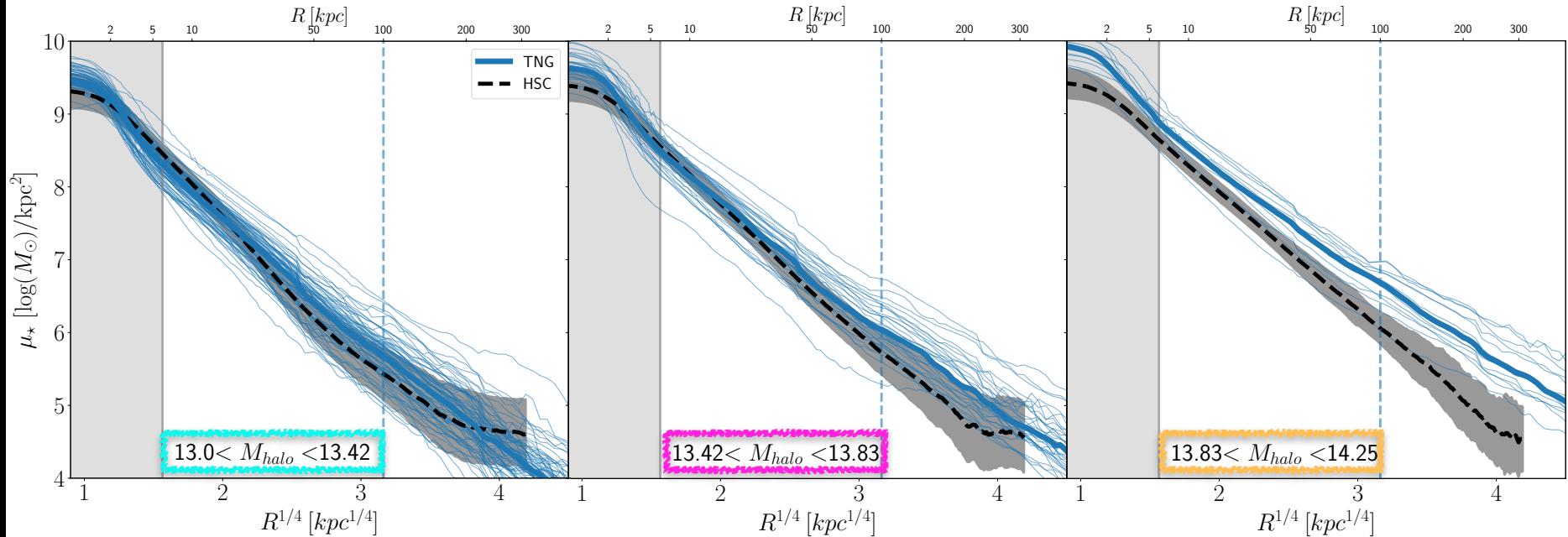
$M_{\star}^{100\text{kpc}}$ vs. M_{halo}



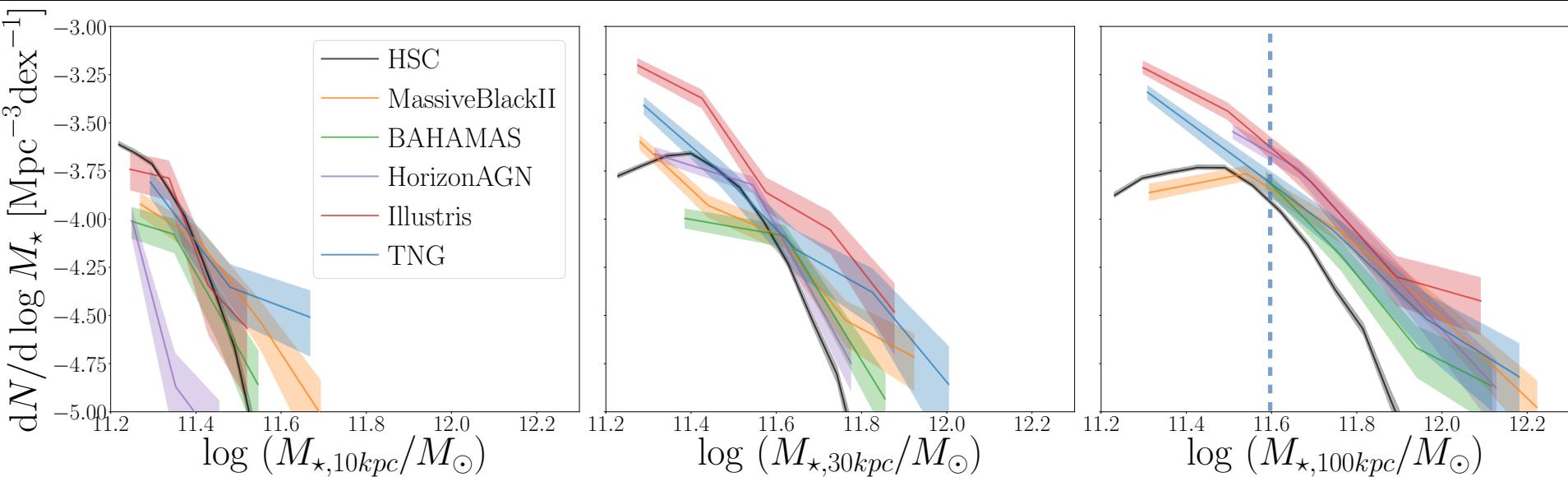
Stellar Mass Profiles



Stellar Mass Profiles



Stellar Mass Functions



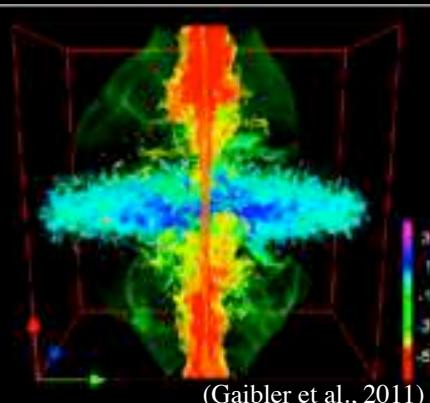
Future work:

- Overmerging?
- AGN feedback?
- Something else?



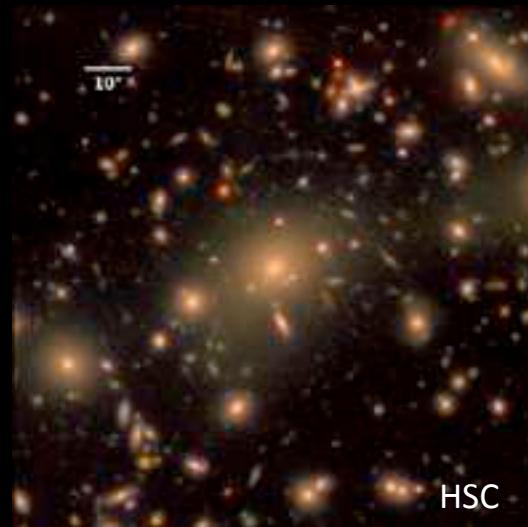
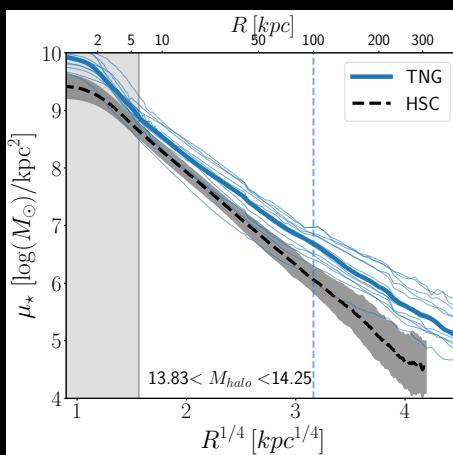
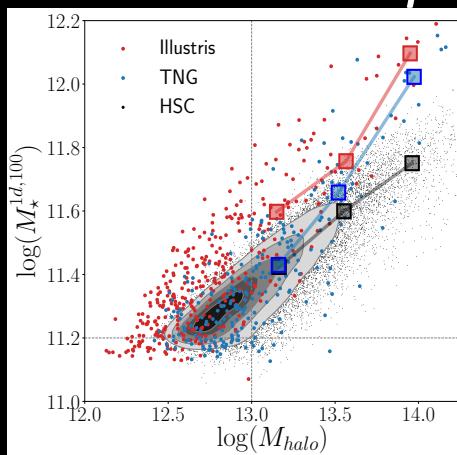
X-ray data: help calibrate
the simulations further

- baryonic effects
- AGN feedback



Main Takeaway:

Stellar profiles of massive galaxies: hydro simulations agree well with observations in inner regions, *not so well (too much mass) in extended stellar envelopes*



vs.

