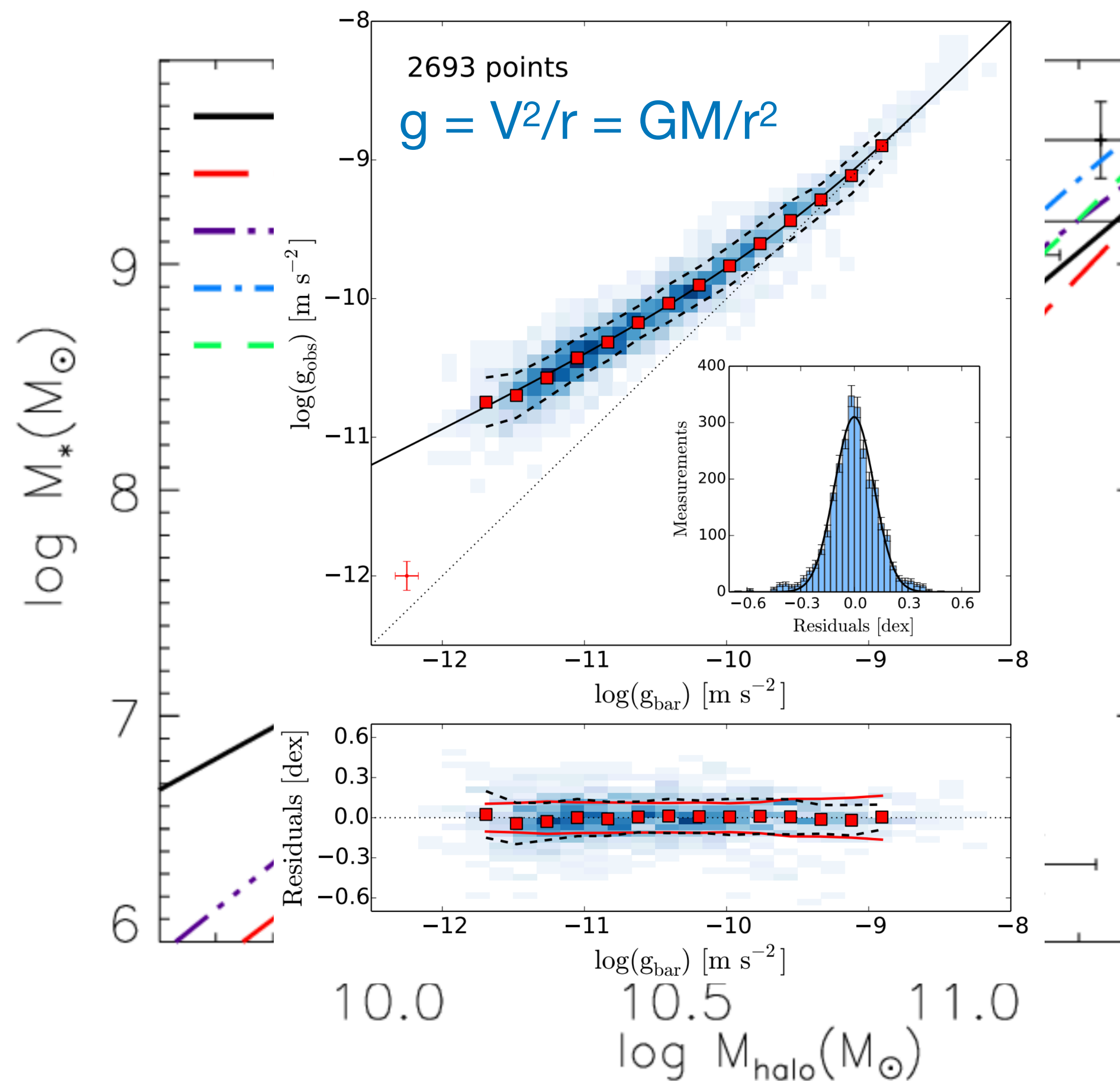


# A Near Universal Predictor for Galaxy DM Mass Content

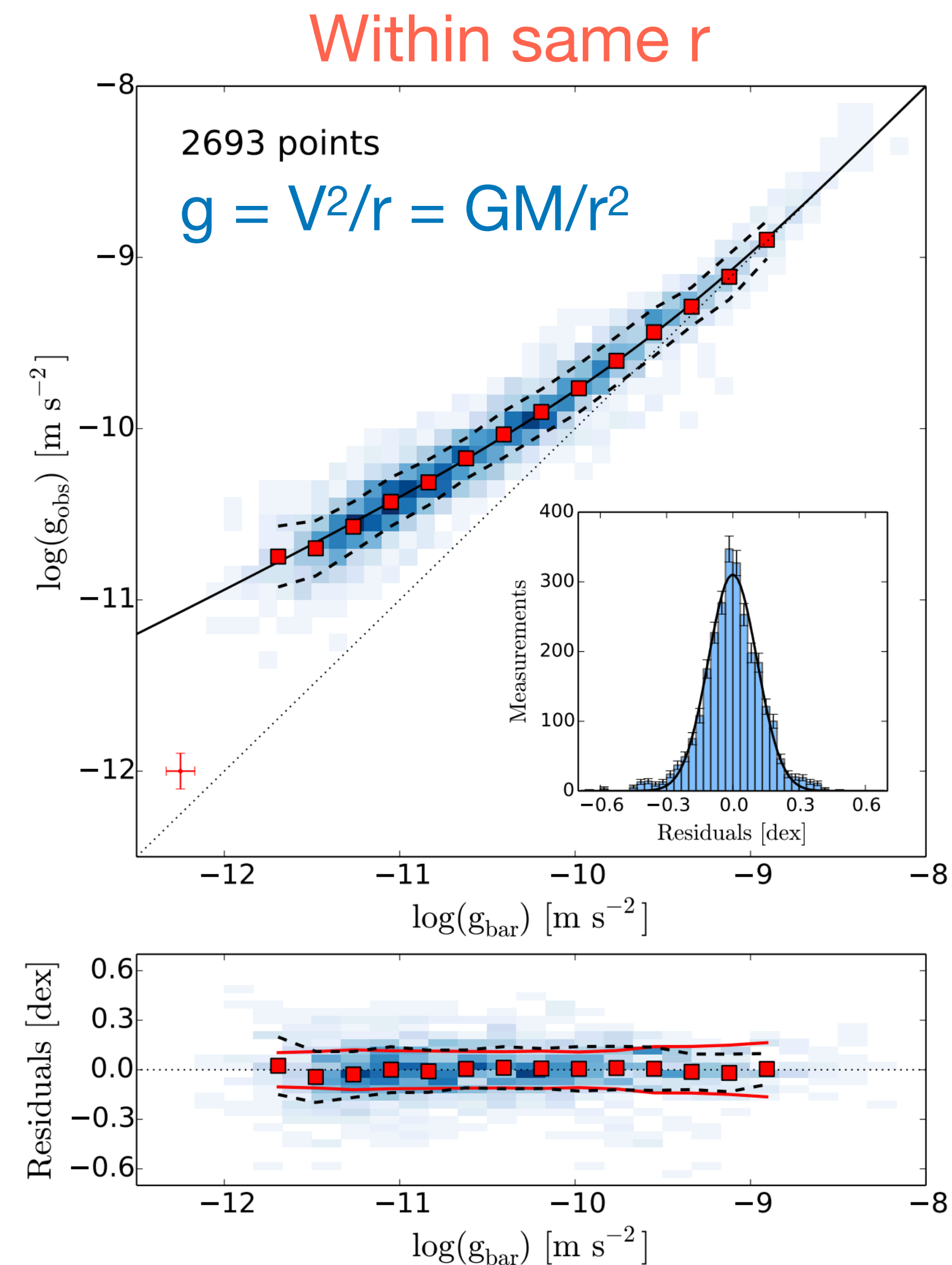
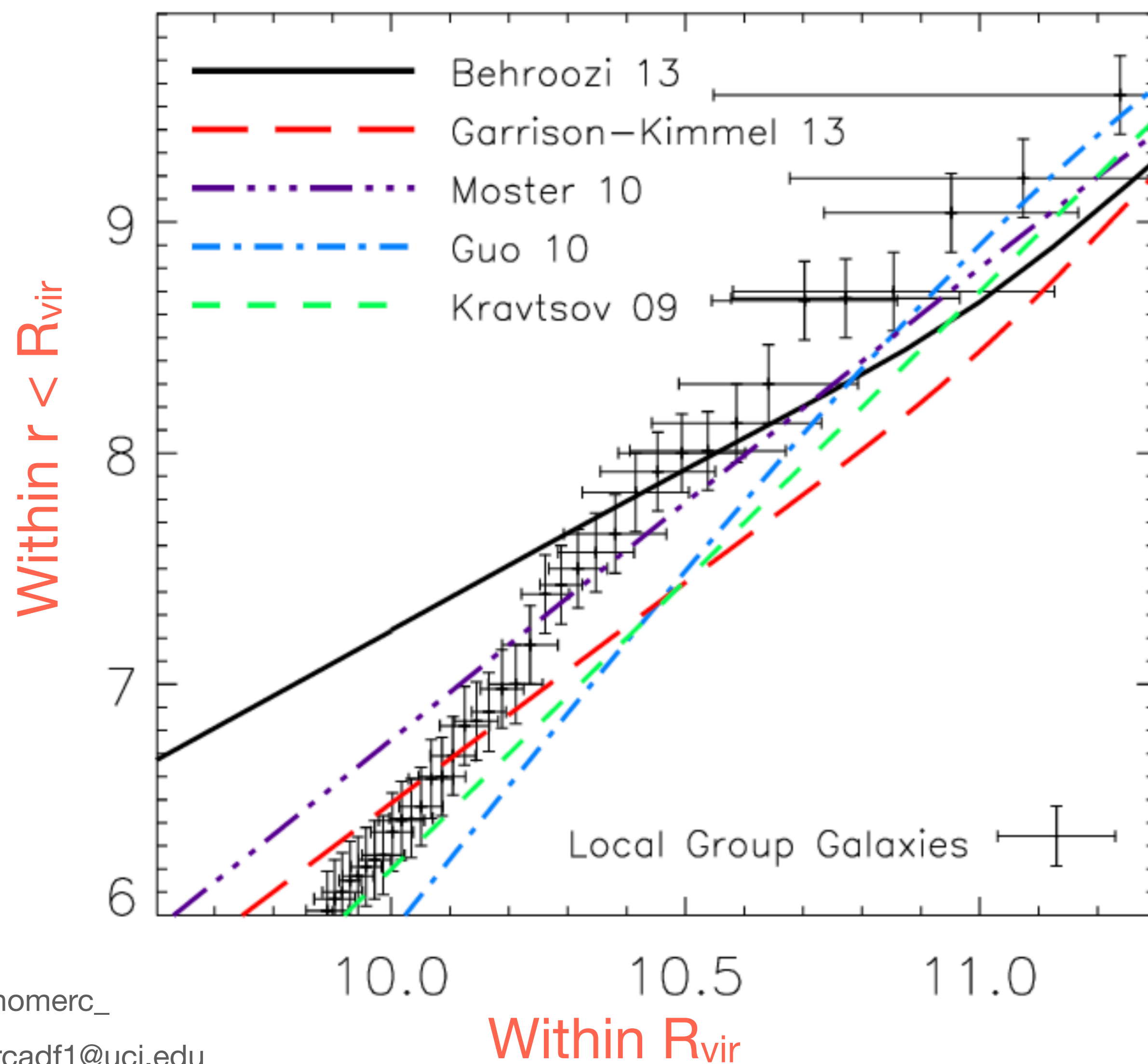
**Francisco J. Mercado**  
**UC Irvine**



# SMHMR & RAR



# SMHMR & RAR



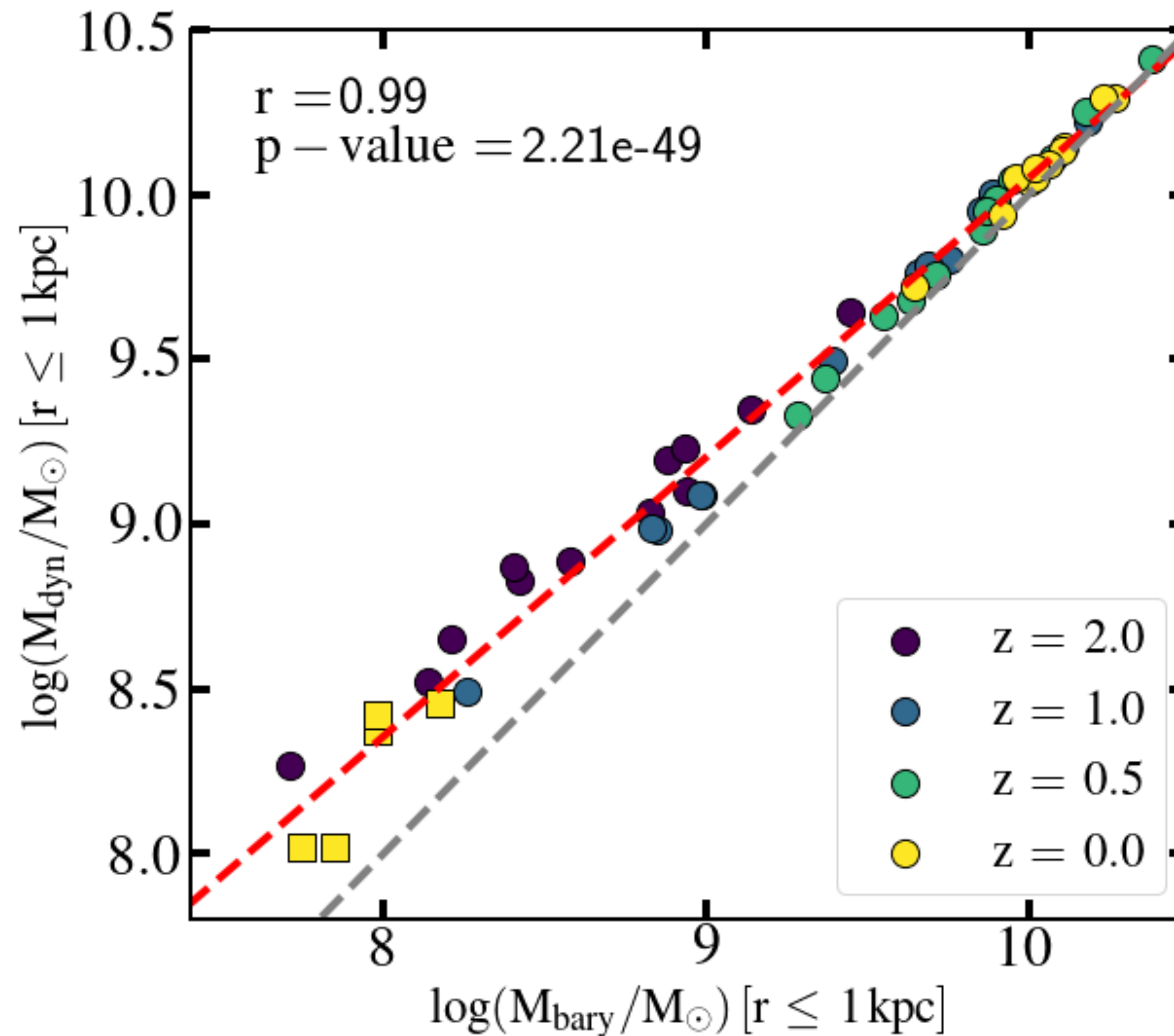


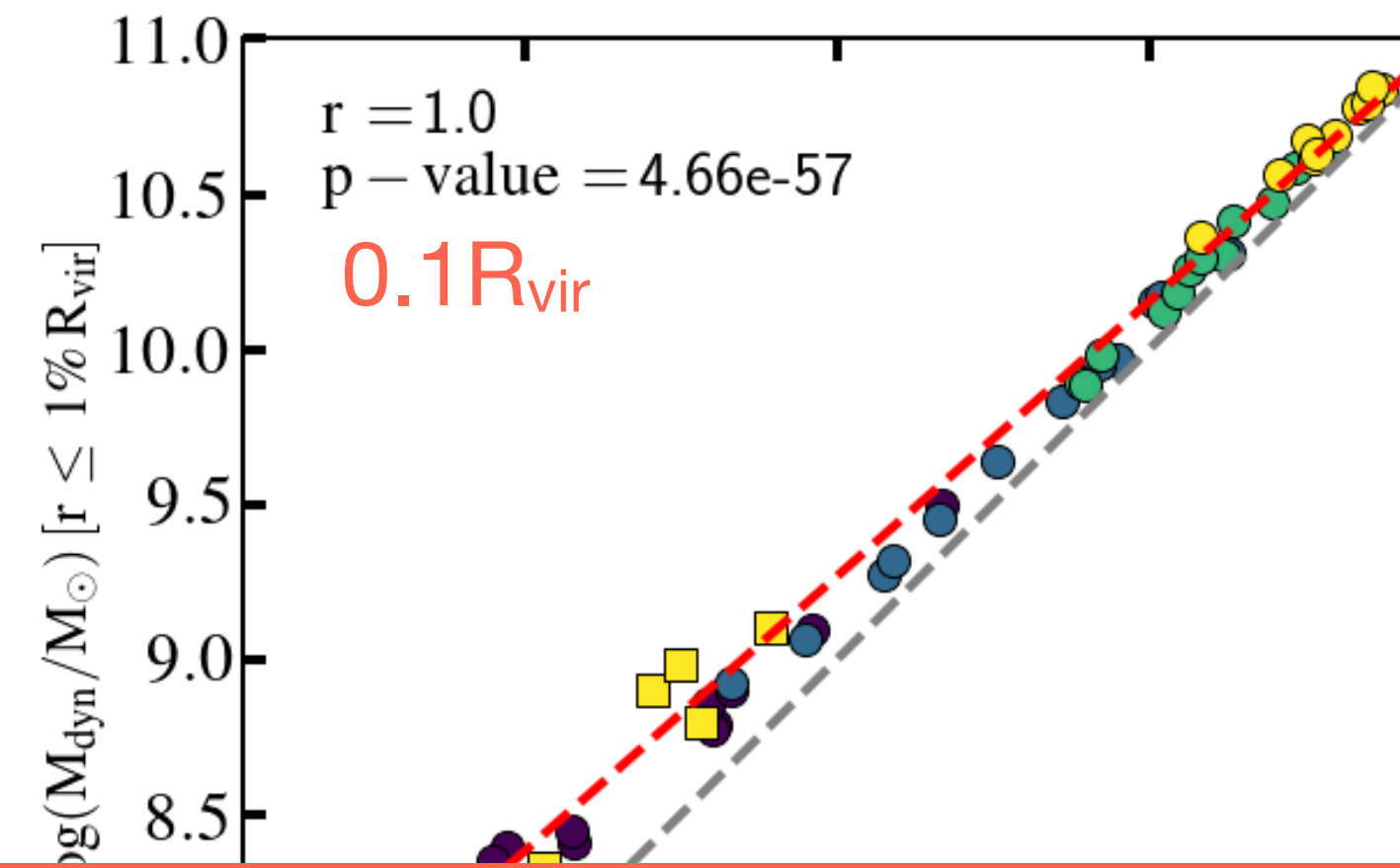
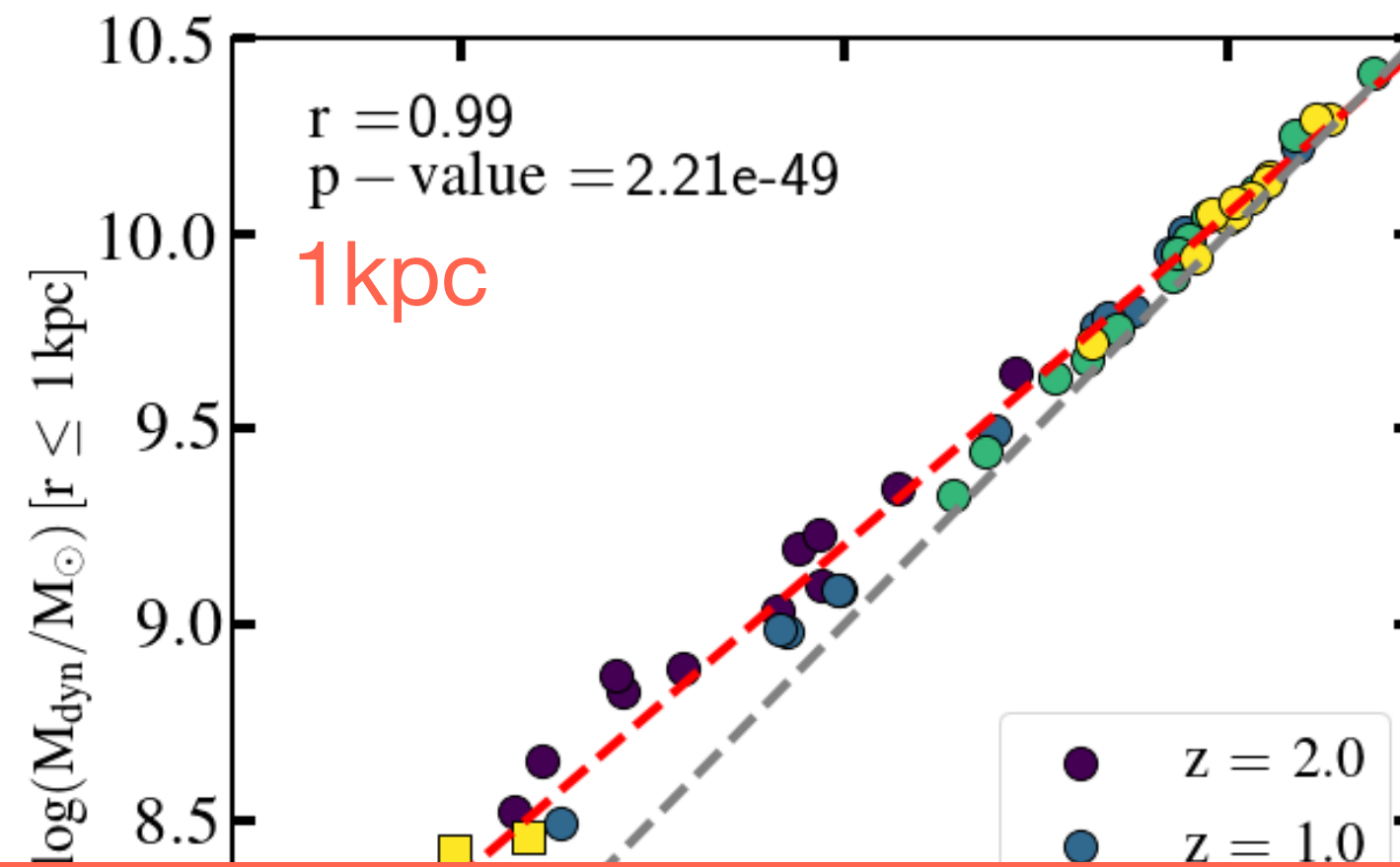


- Cosmological, hydrodynamical zoom-in simulations of galaxies
  - 12 MW-like sims ( $M_{\text{halo}} \sim 10^{12} M_{\text{sun}}$ )
  - MW-like progenitors at 3 other redshifts ( $z = 0.5, 1, 2$ )
  - 5 less-massive sims ( $M_{\text{halo}} \sim 10^{11} M_{\text{sun}}$ )
  - Total of 53 simulated galaxies

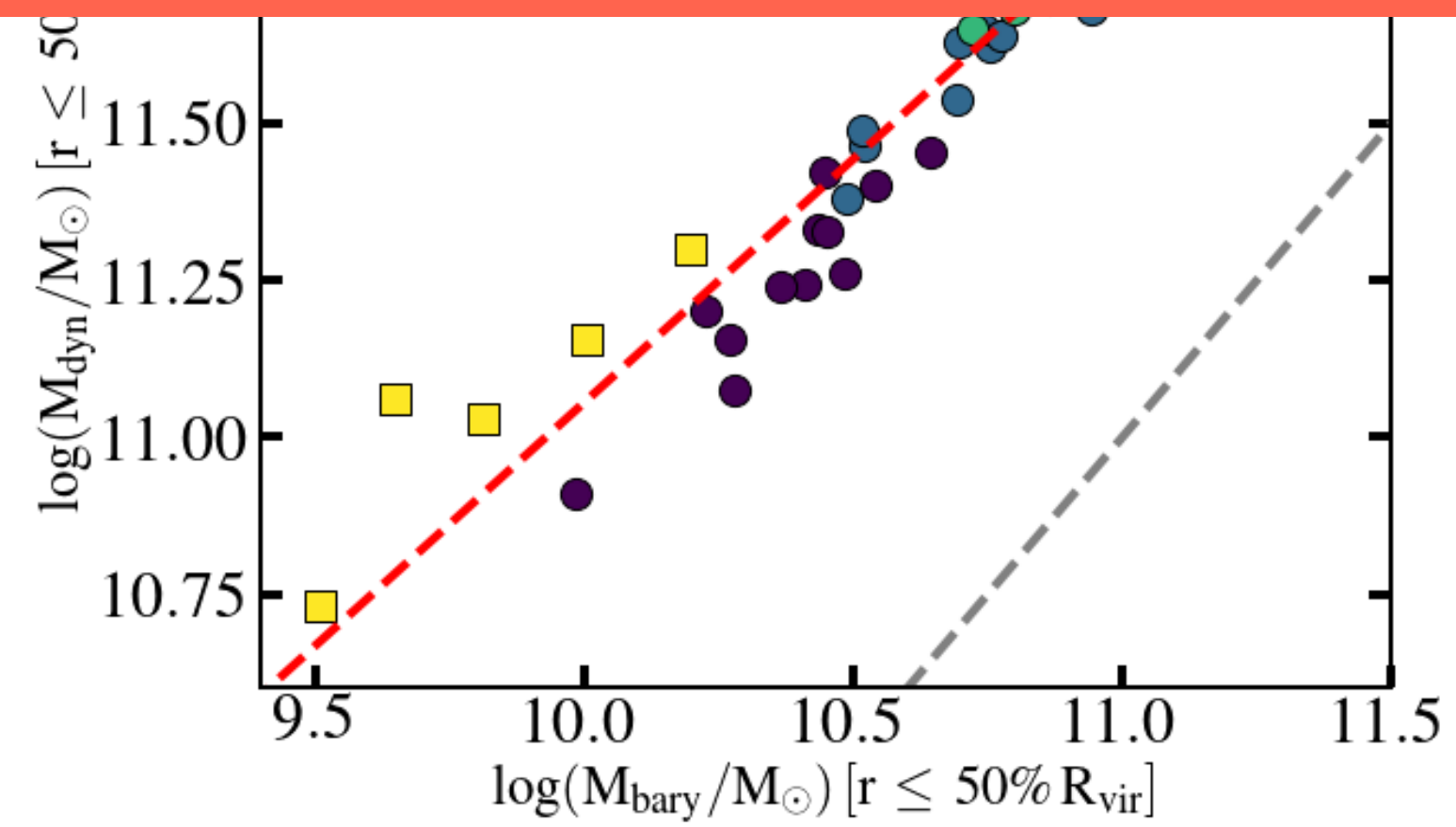
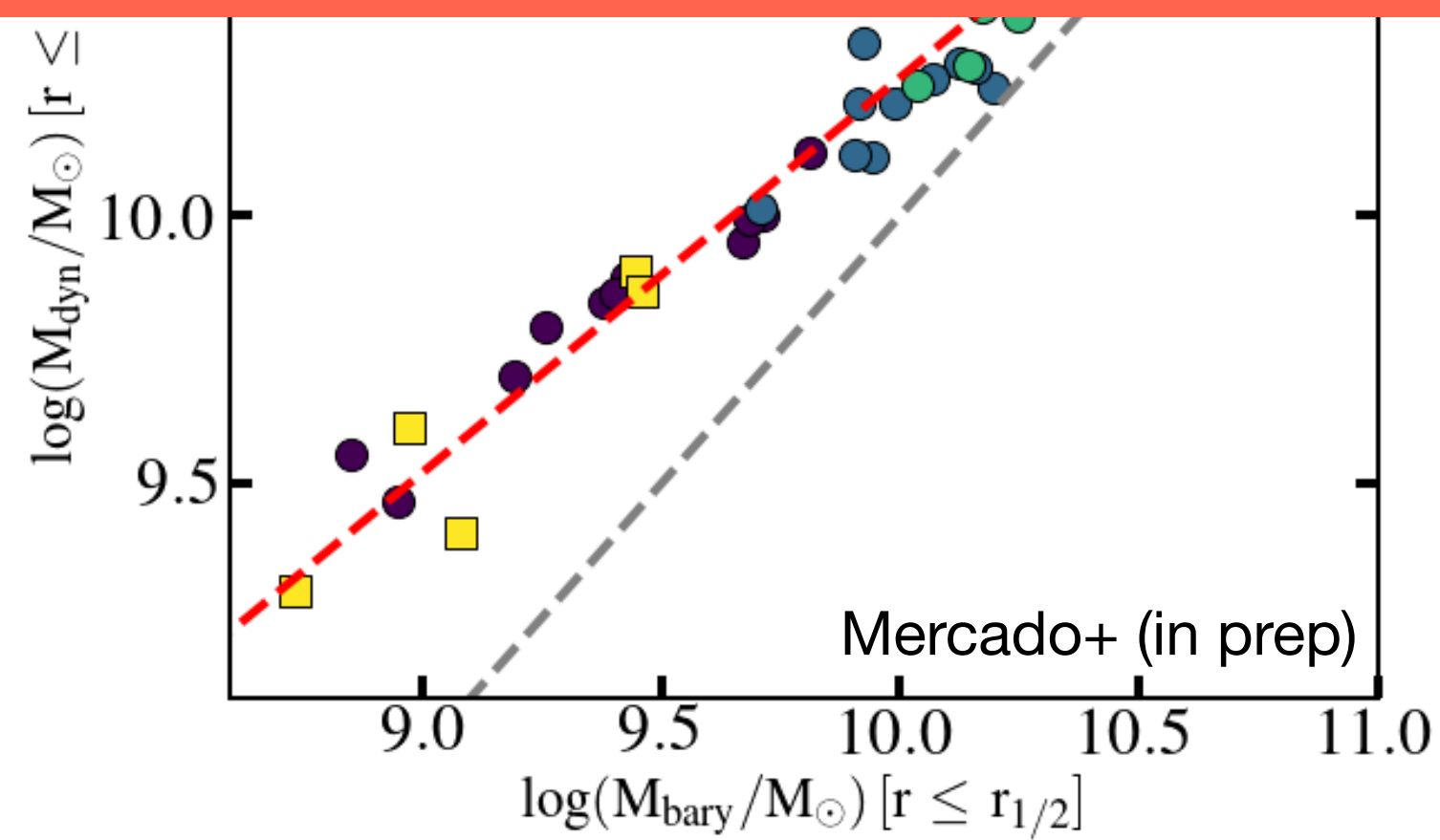


# Very Tight Mass vs. Mass Relationship

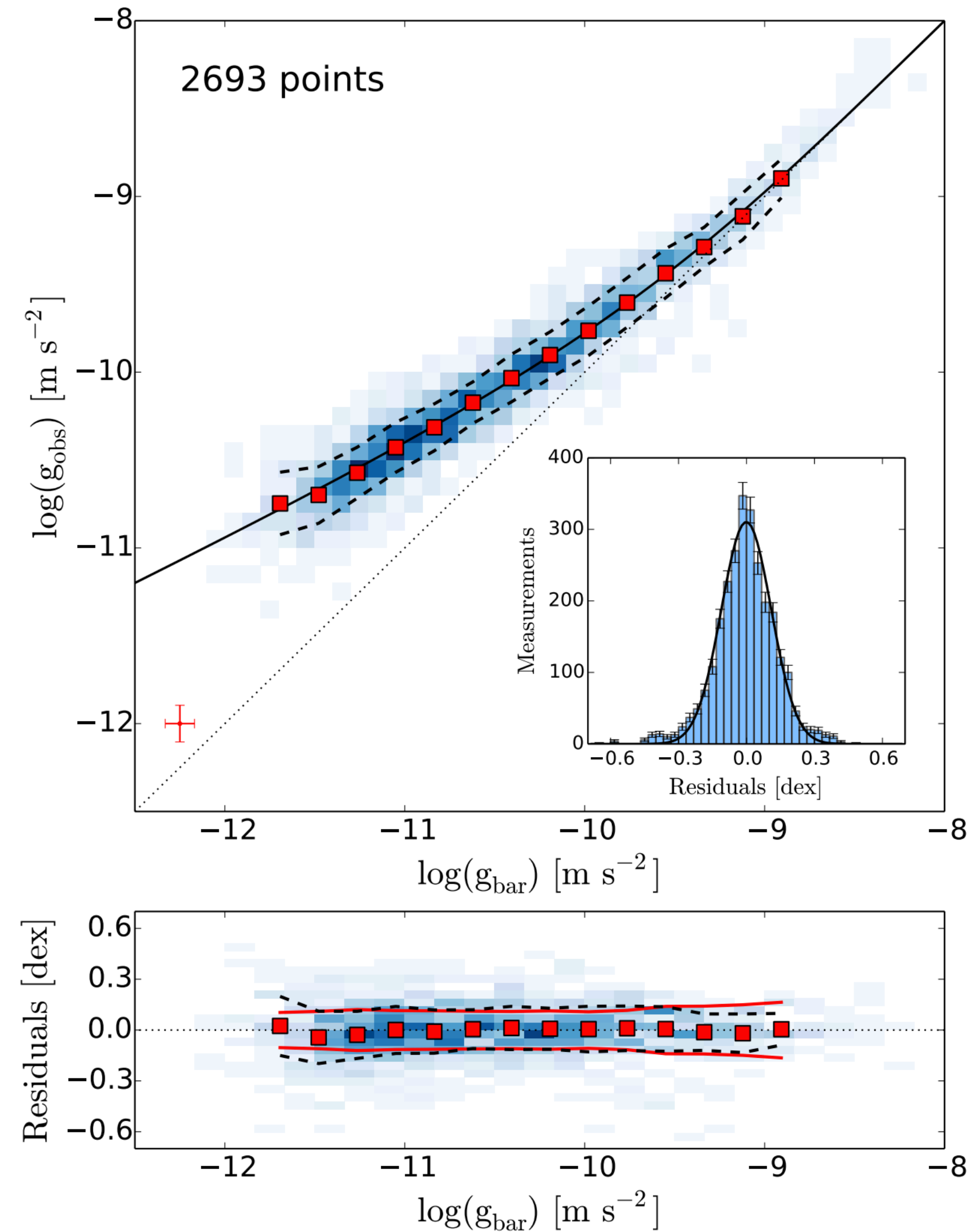
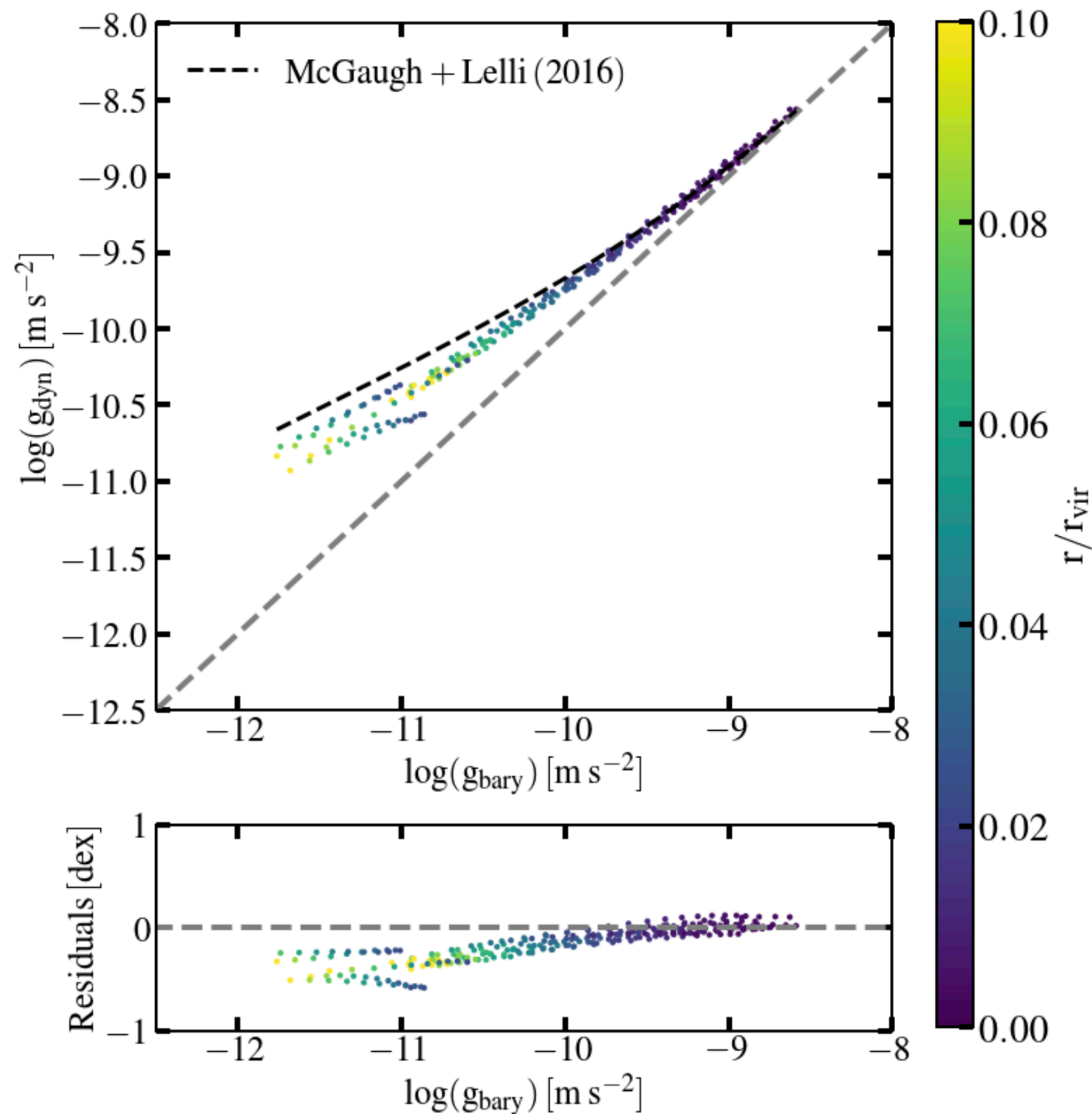




$$M_{\text{dyn}}(r) \propto M_{\text{bary}}(r) \quad \longrightarrow \quad \frac{GM_{\text{dyn}}(r)}{r^2} \propto \frac{GM_{\text{bary}}(r)}{r^2}$$



# Radial Acceleration Relation



# Thanks!

Coming soon to an Arxiv near you!



: Astronomerc\_

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