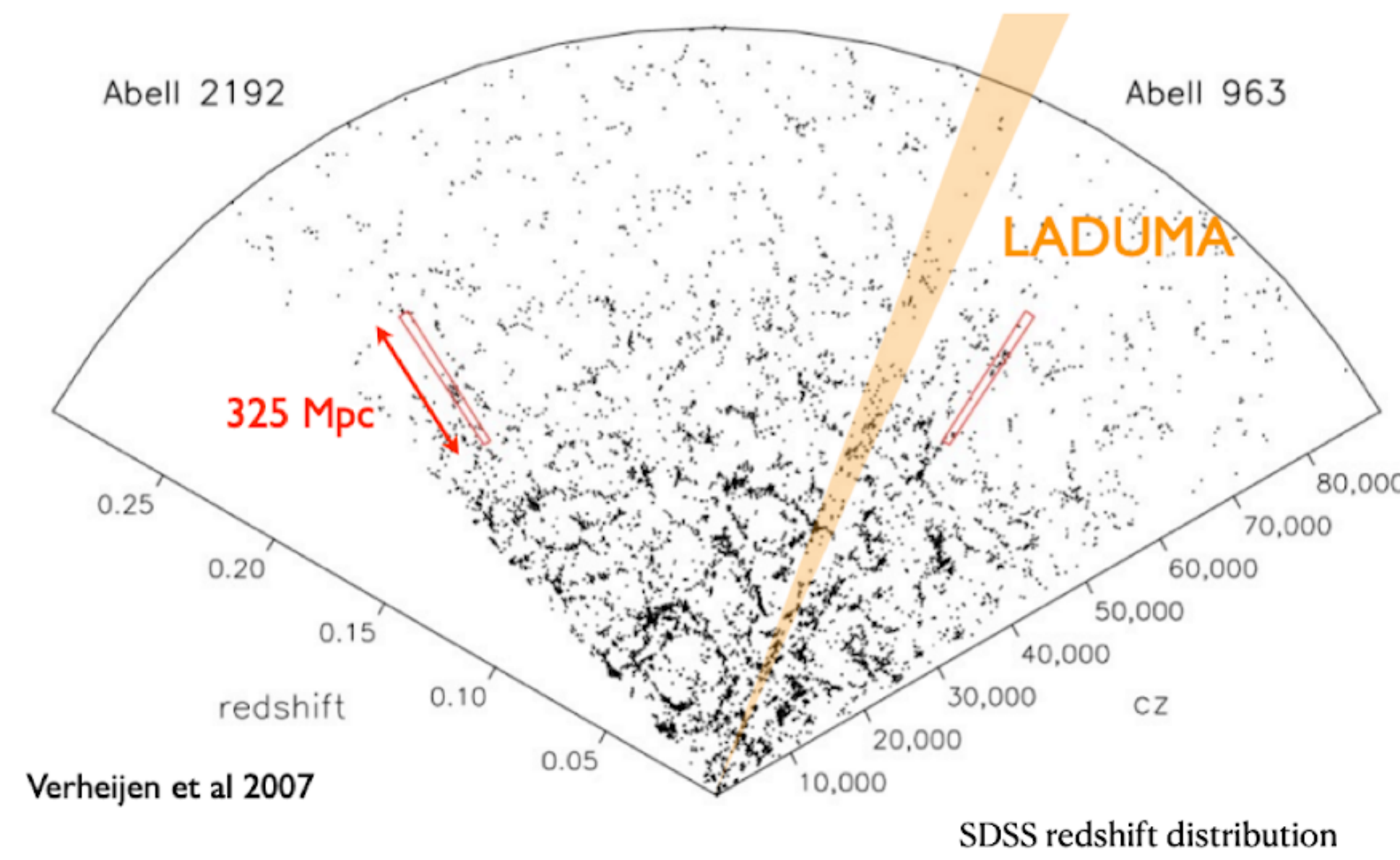


### LADUMA

#### The LADUMA survey

- One of MeerKAT large survey
- More than 3000 observing time: 300h in L-band and 3000 h in UHF-band
- Aims to detect HI up to  $z \sim 1.4$
- Single point encompassing Chandra Deep Field South (CDFS)



PIs: Sarah-Louise Blyth, Andrew J. Baker, Benne W. Holwerda

### Rotation curves

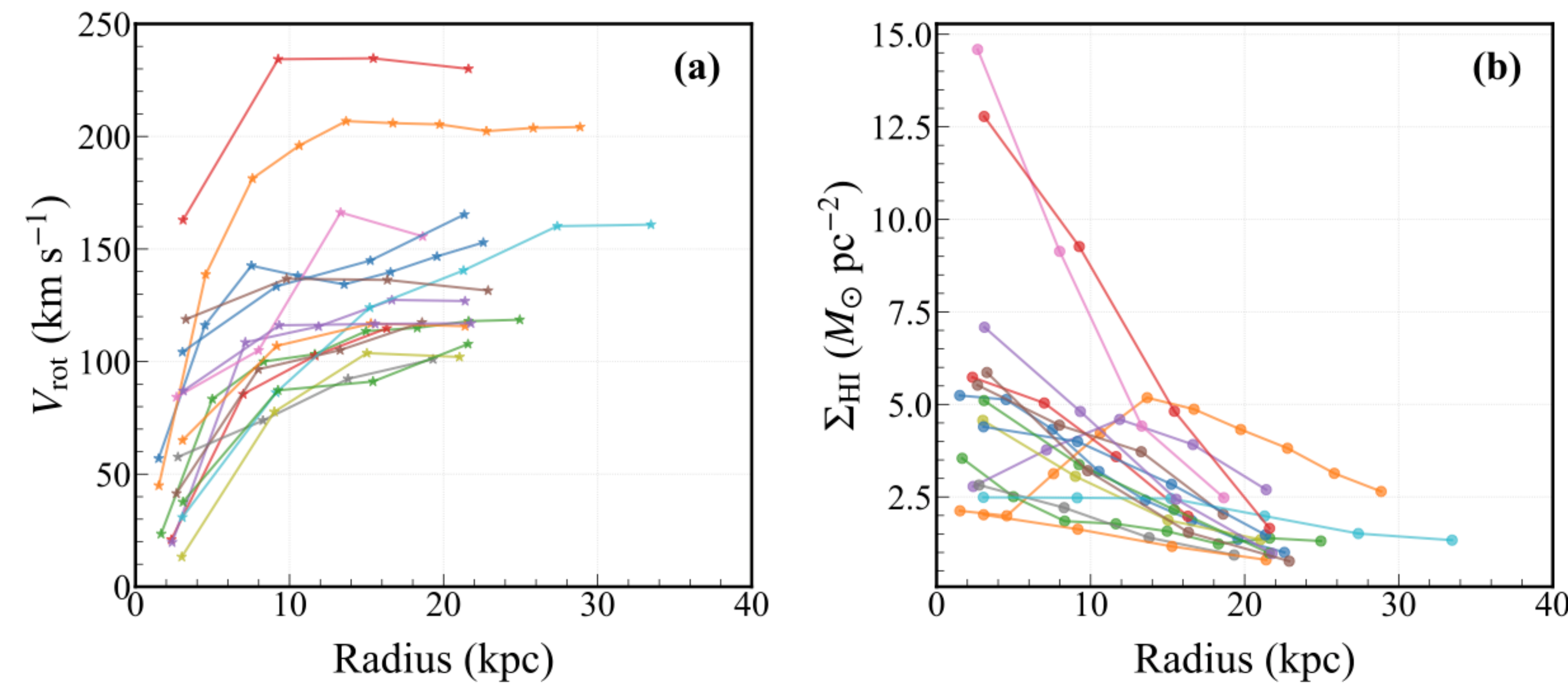


Fig. 1 Rotation curves and HI density profiles of the selected galaxies

### Mass models

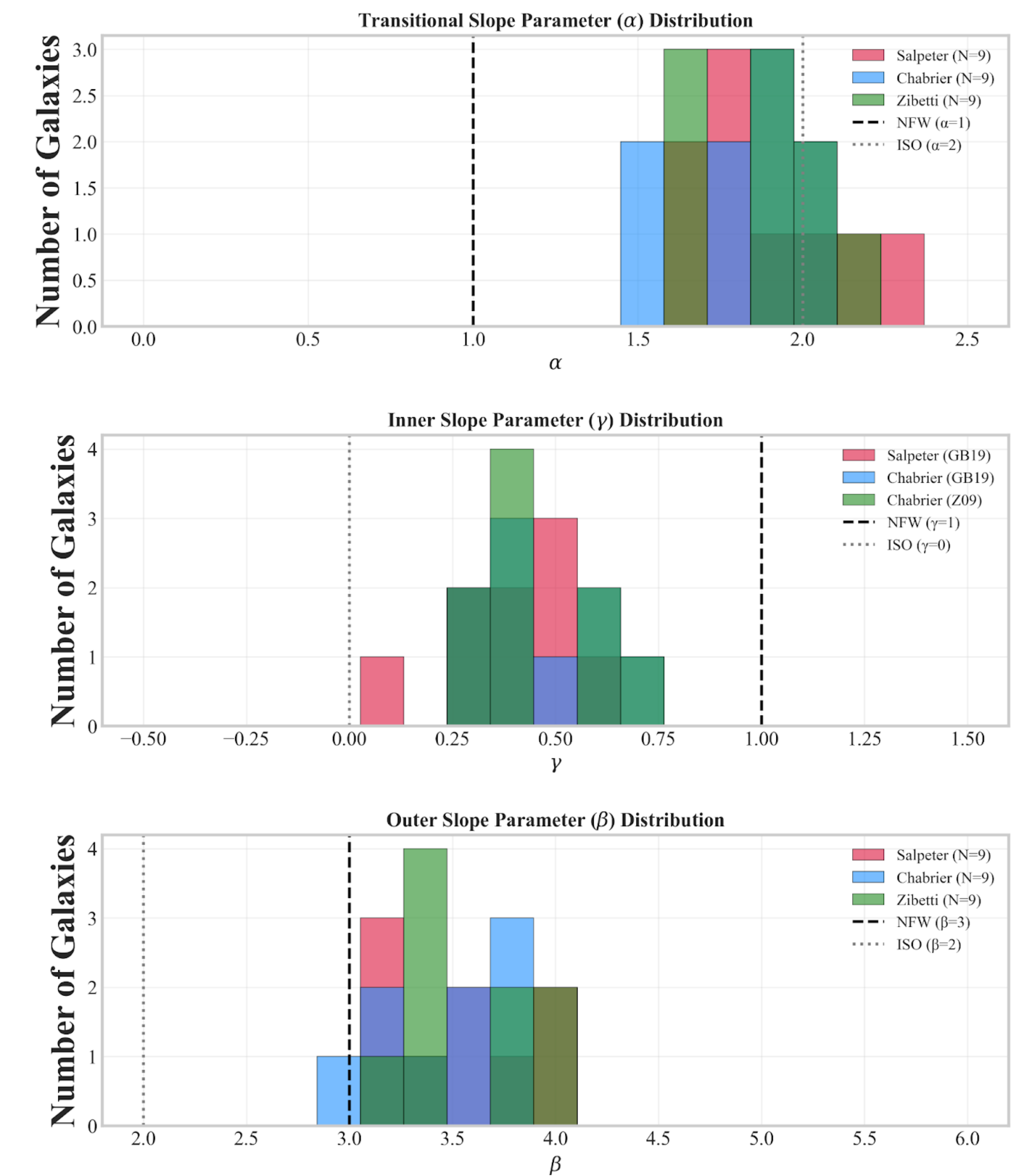
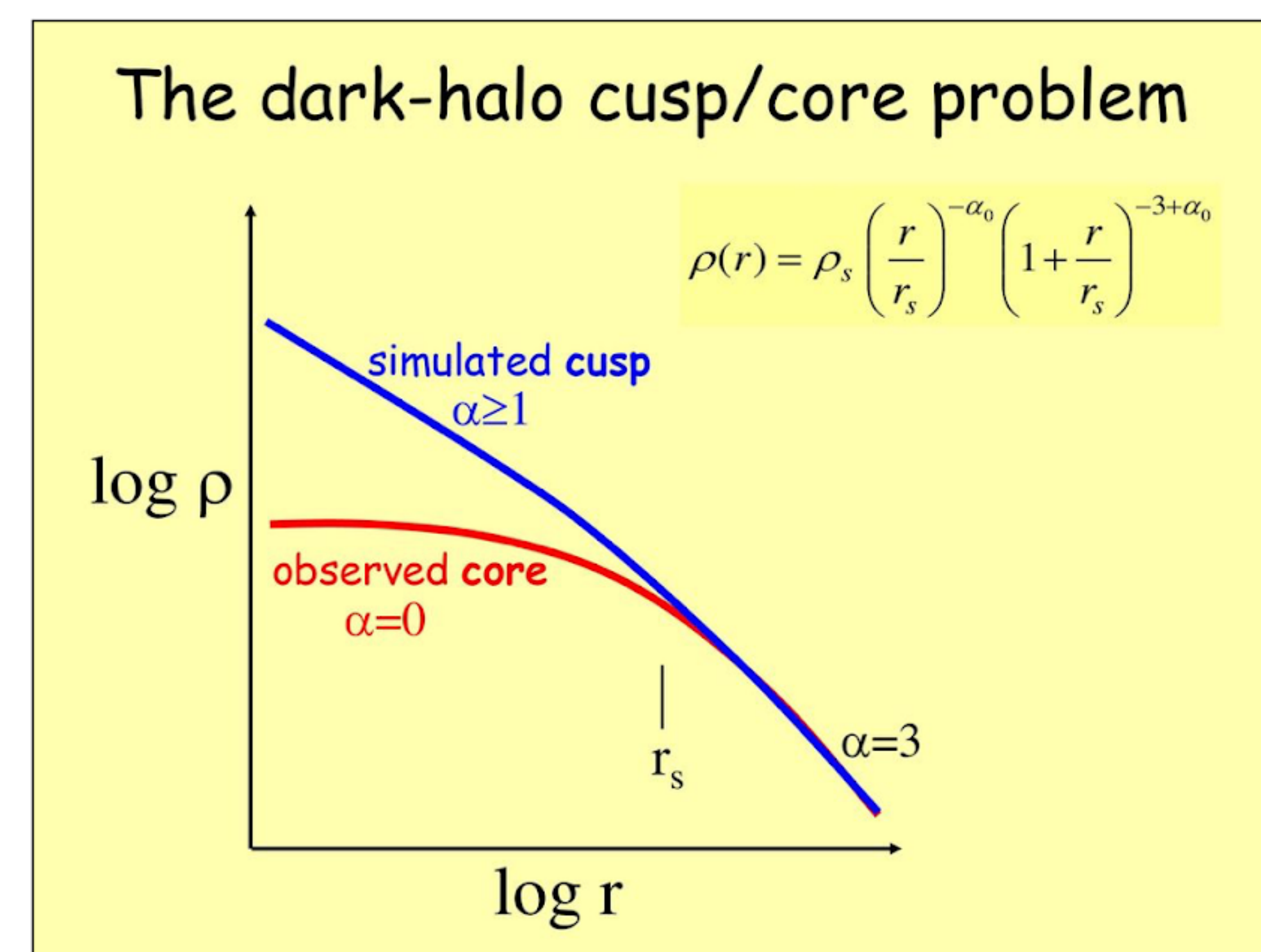


Fig. 3 Comparison between the three DM halo profiles

#### Dark matter in galaxies

- The core-cusp problem and its evolution with redshift?
- Dark matter fraction and its evolution with redshift and gas fraction?



### Mass models

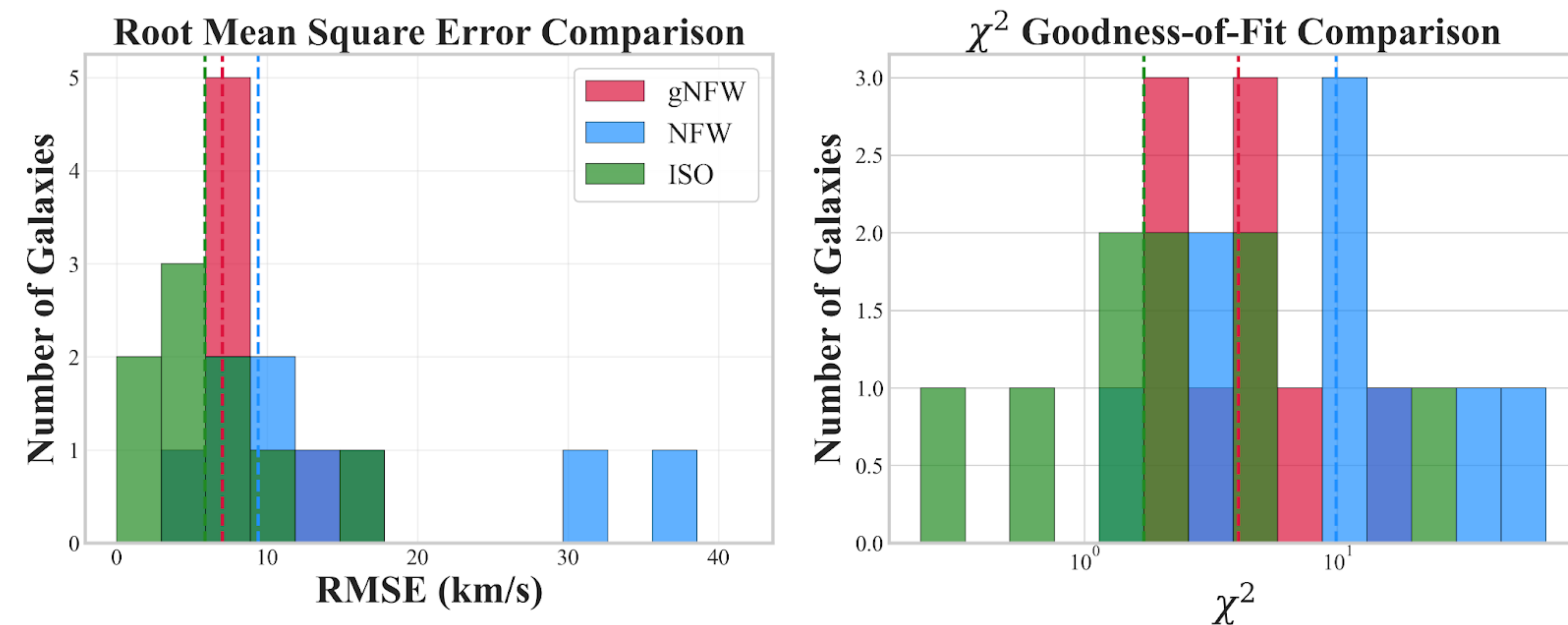


Fig. 2 Comparison between the three DM halo profiles

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### Summary

- **gNFW fits best:** It provides accurate rotation-curve fits with physically realistic halo parameters, unlike NFW (too shallow) or ISO (too concentrated).
- **Inner slopes vary:** Galaxies show a range of core-cusp shapes, with gNFW slopes consistently shallower than NFW and consistent with baryonic feedback.
- **IMF matters:** Different stellar M/L assumptions shift the inferred inner halo slope, but none recover a classic NFW cusp.
- **LambdaCDM-consistent halos:** The gNFW mass-concentration relation aligns with theoretical predictions, showing that LADUMA galaxies remain fully compatible with LambdaCDM when halo slopes are allowed to vary.

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