

Radial variations in the Initial Mass Function of Early Type Galaxies

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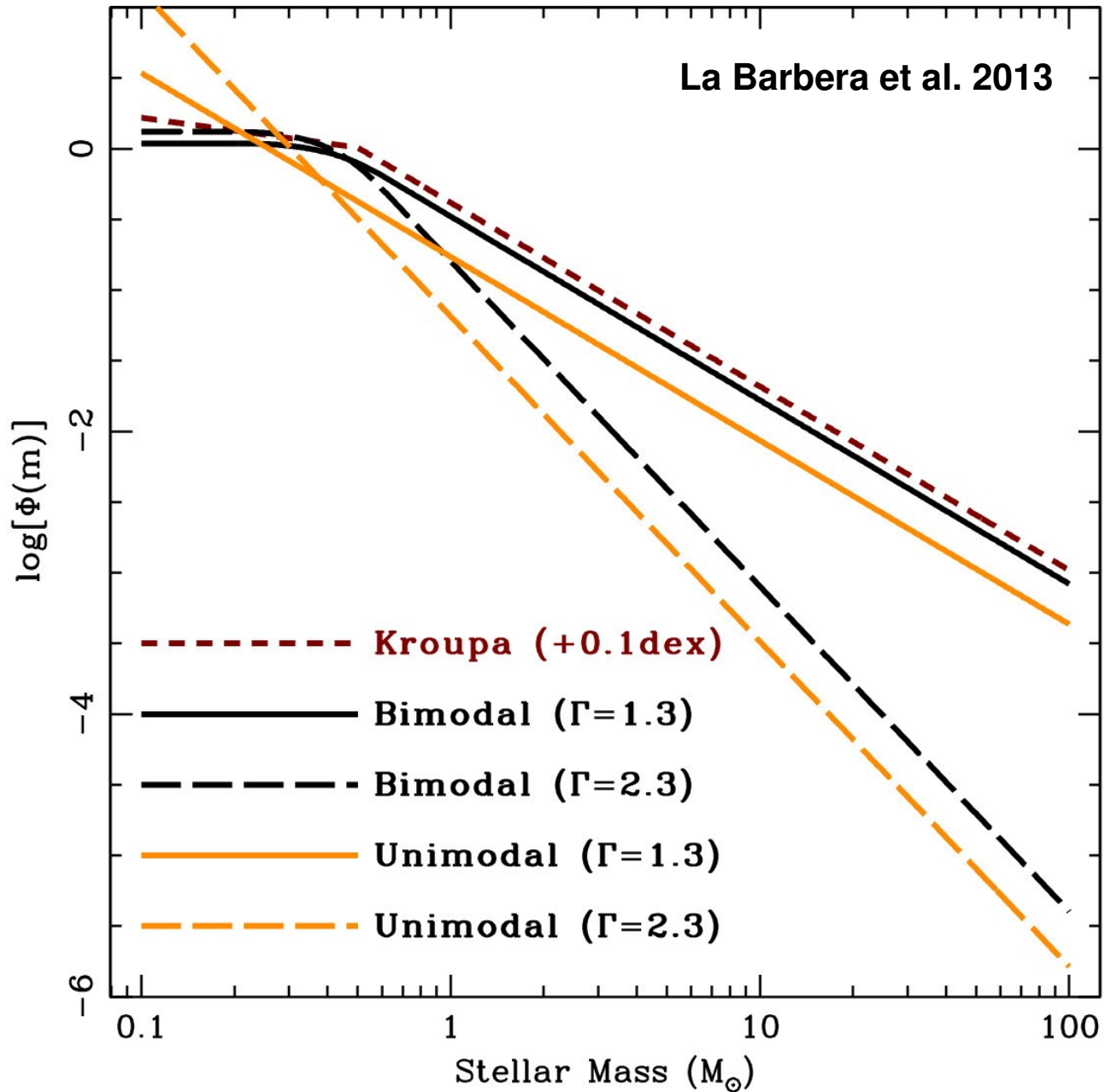


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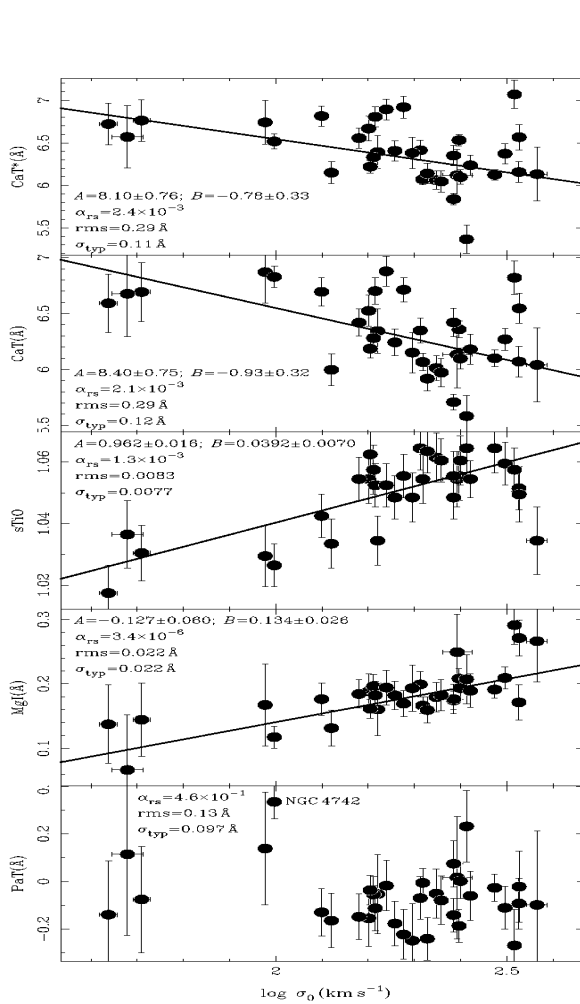
Traces of galaxy formation
www.iac.es/project/traces



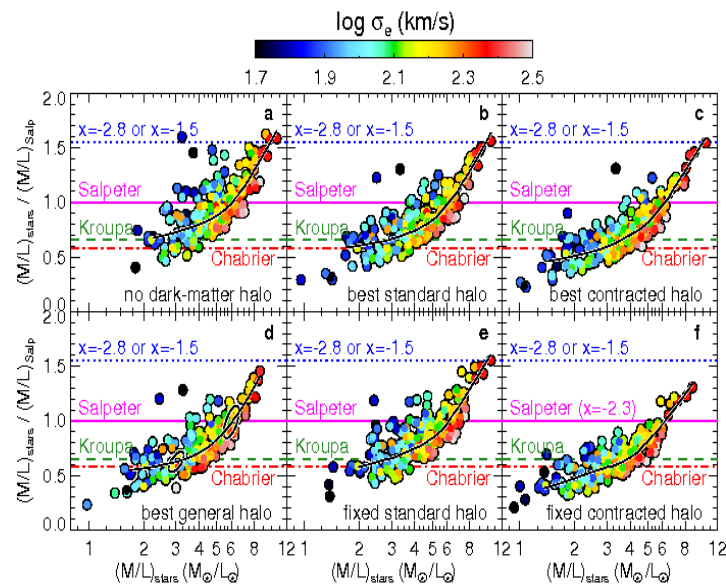
IMF: How does it look like?



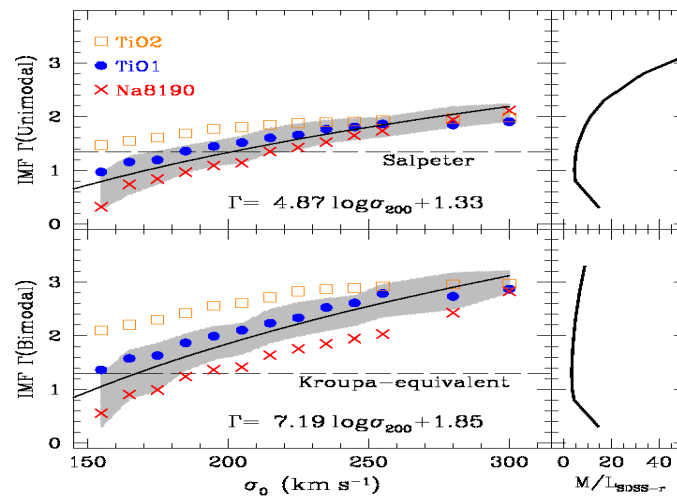
IMF in Early type galaxies



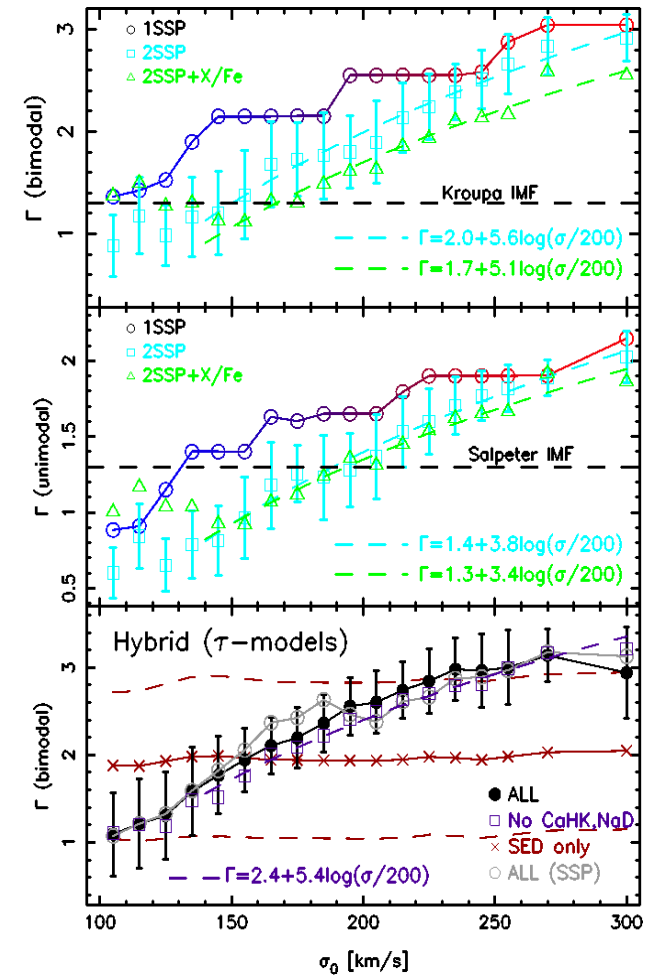
Cenarro et al. 2003



Cappellari et al. 2012

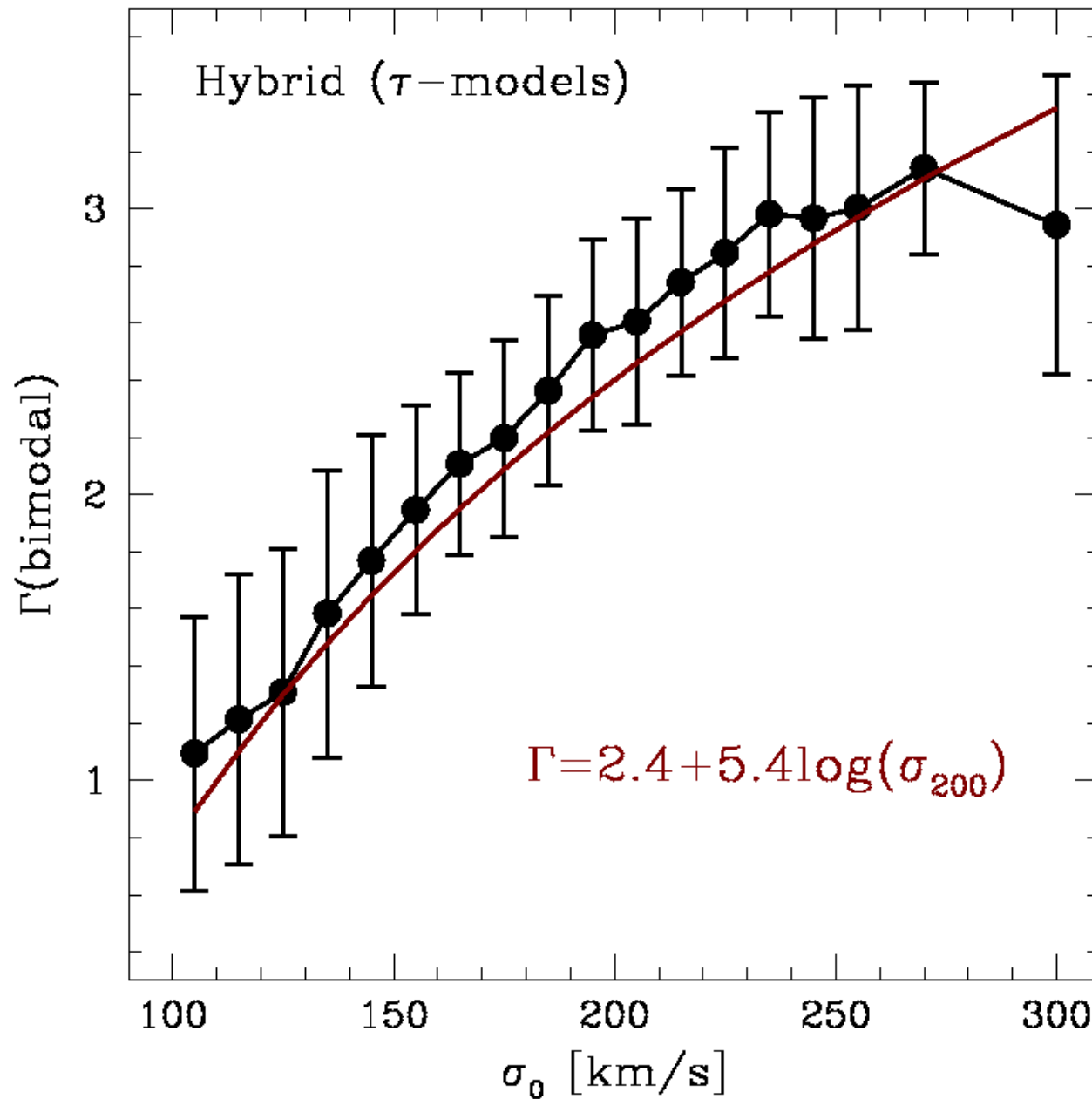


Ferreras et al. 2013



La Barbera et al. 2013

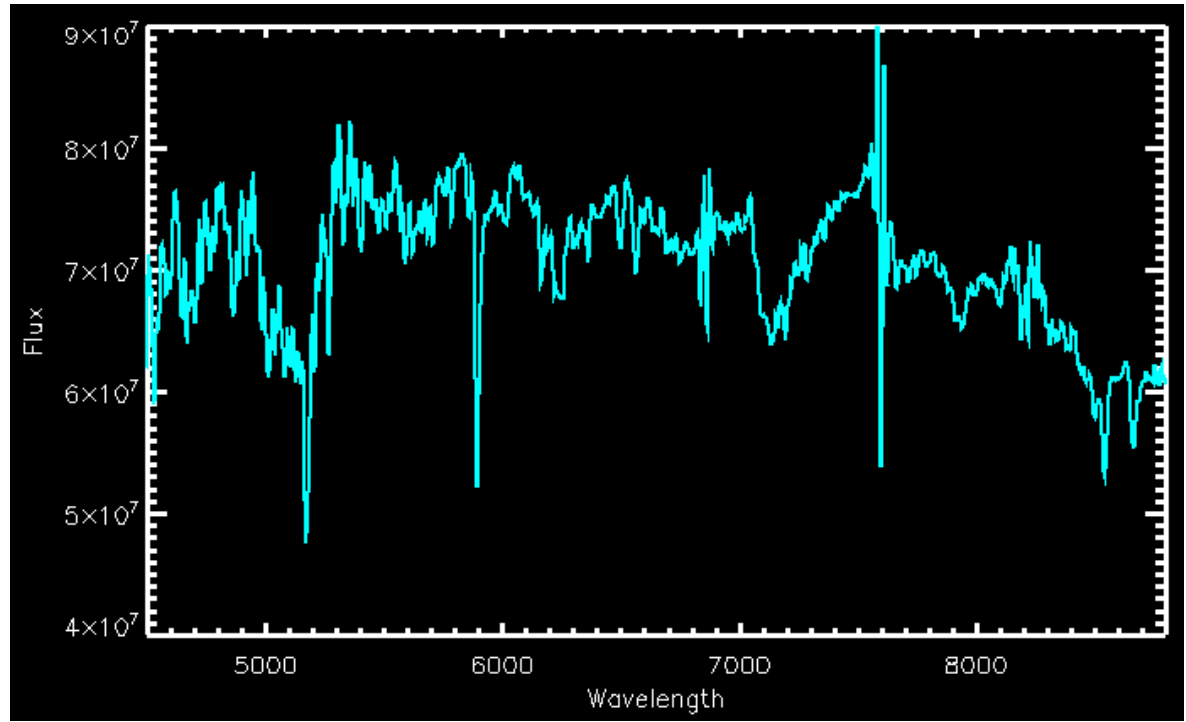
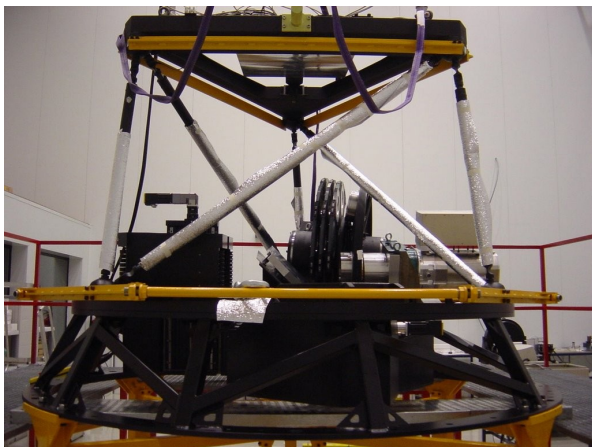
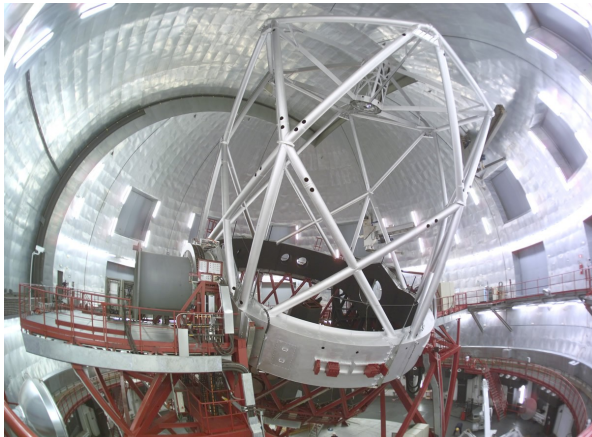
IMF in Early type galaxies



La Barbera et al. 2013

Does the IMF depend on the **central**
or on the **local** velocity dispersion?

Gran Telescopio Canarias: OSIRIS

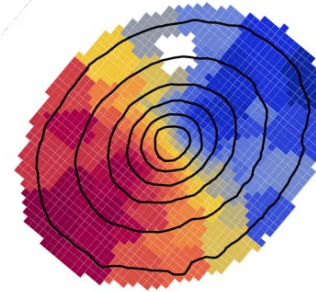
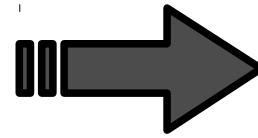
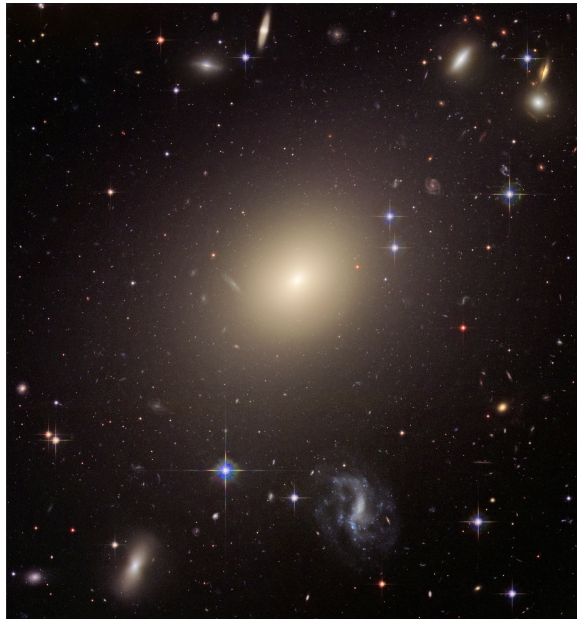


Wavelength coverage: 4500 – 9000 Å

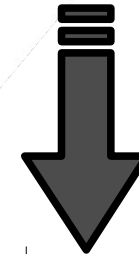
Resolution: $R \sim 1000$

Ultra deep spectra: $\text{SN} / \text{Å}$ at th $R_{\text{eff}} > 100!!$

IMF calculation: process overview



Kinematics
 V, σ

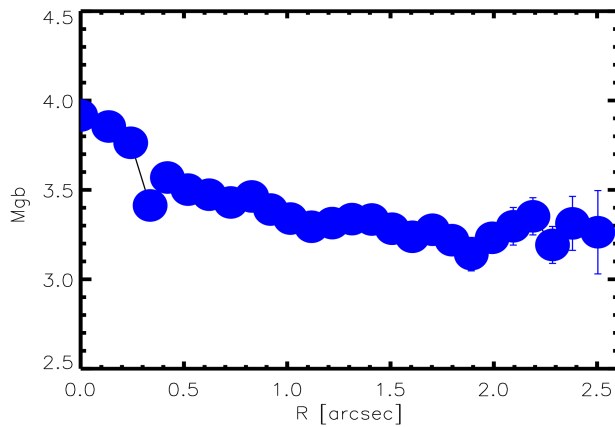
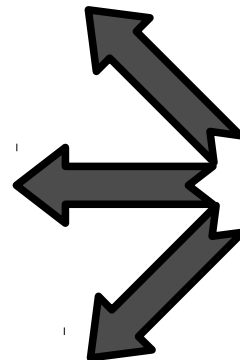


Spectral Indices

Metallicity: [MgFe]

Age: Hbeta₀

IMF: TiOs, Ca, Nd, Mg...



Age/Metallicity/IMF radial profiles

The sample

NGC 4552



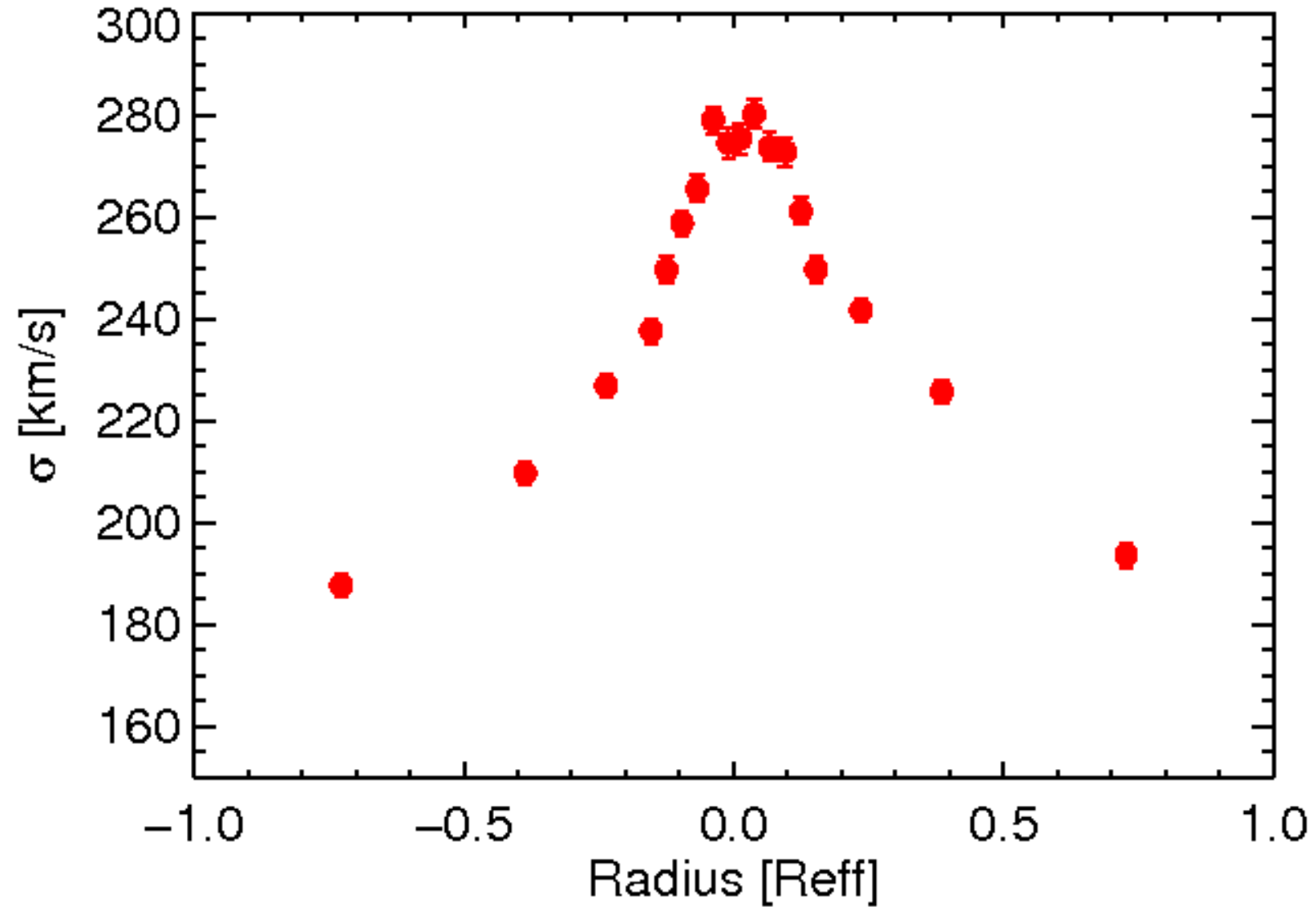
- Large σ coverage
 $200 < \sigma < 300$ [km/s]

NGC 4387

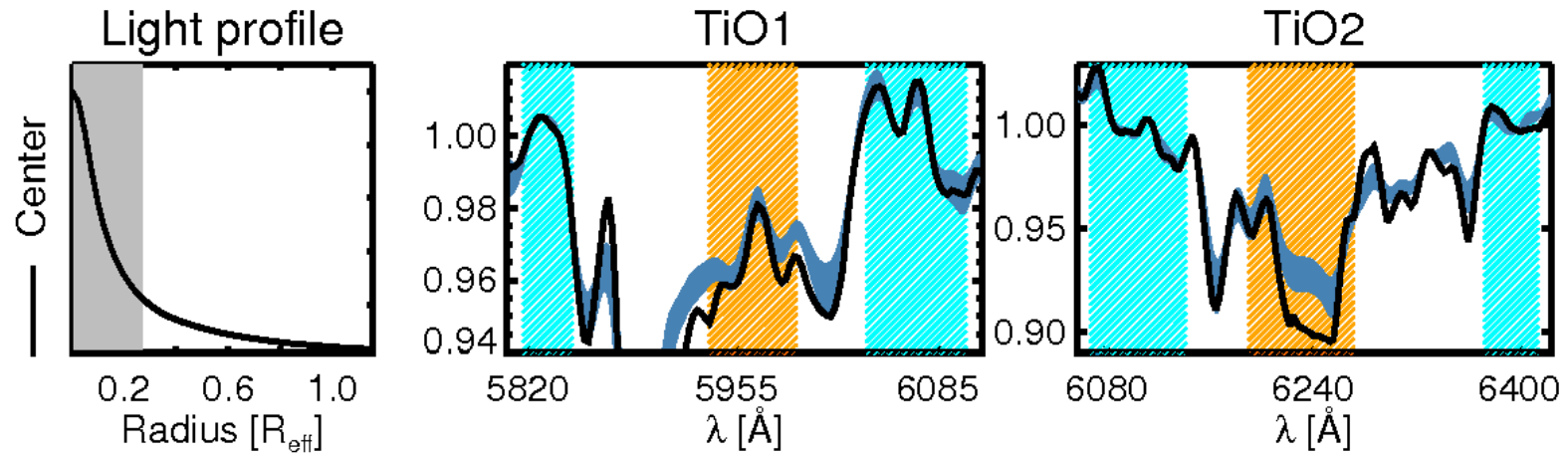


- Low mass counterpart
 $\sigma \sim 100$ [km/s]

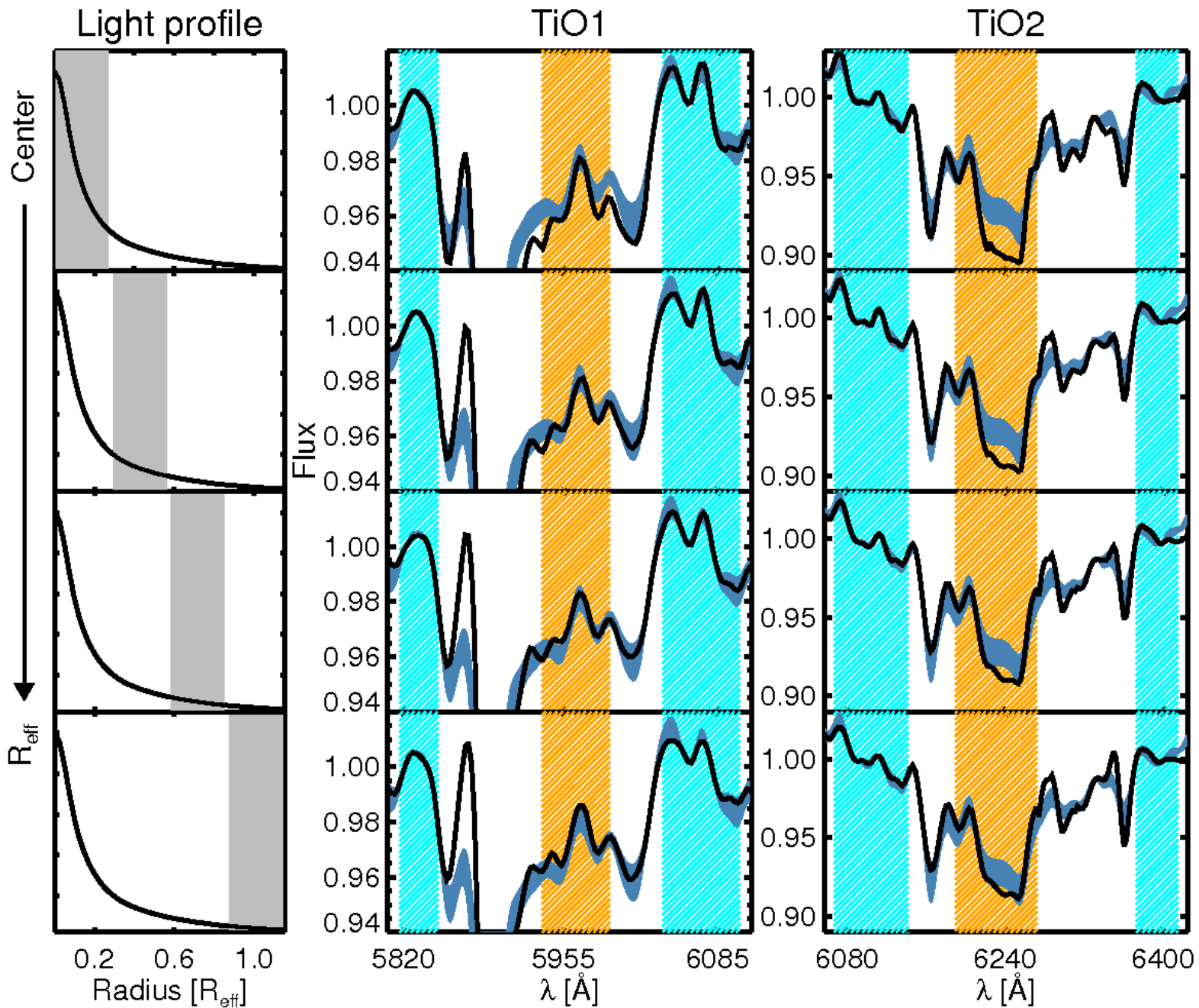
NGC 4552: kinematics



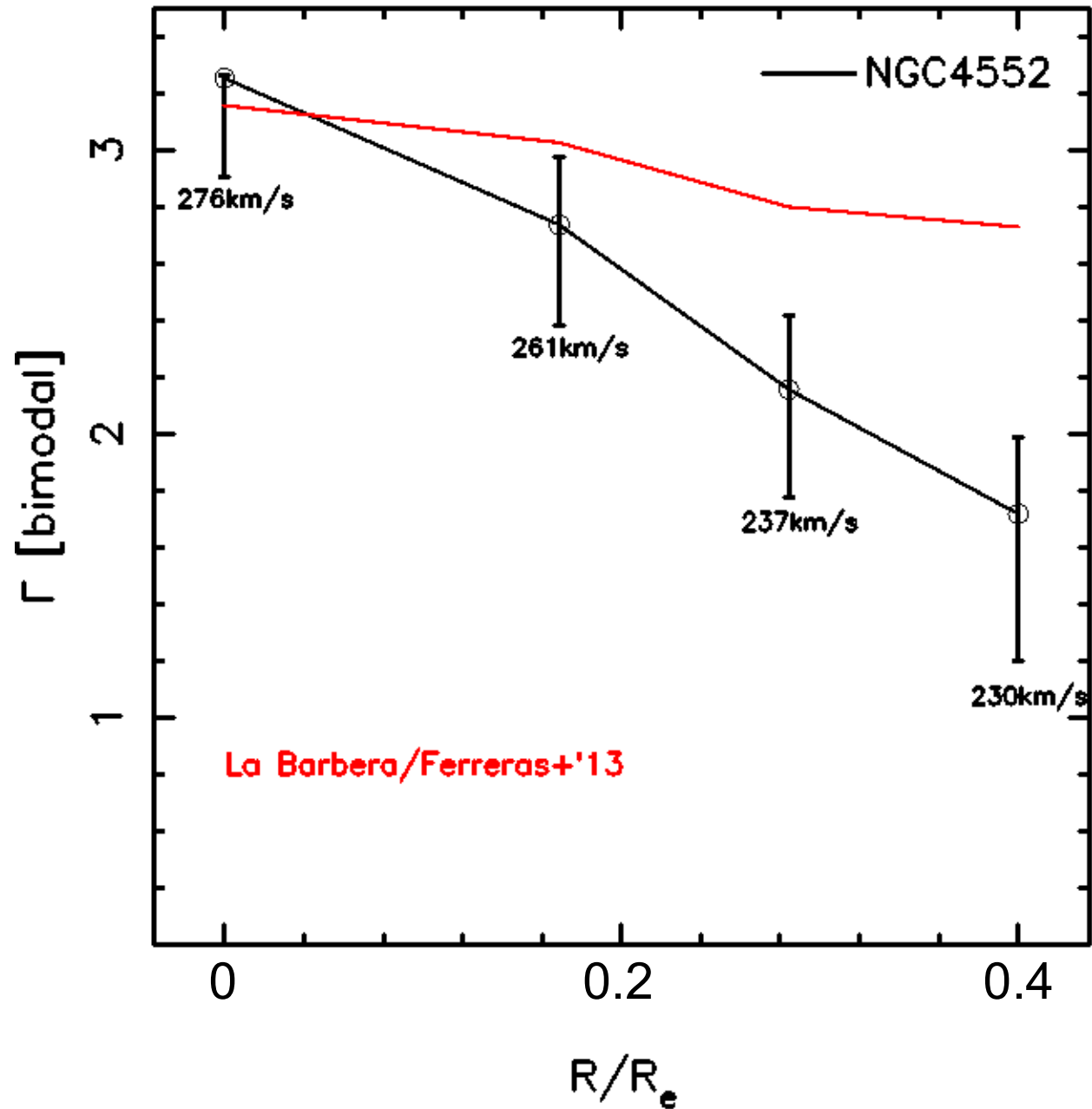
NGC 4552: qualitative analysis



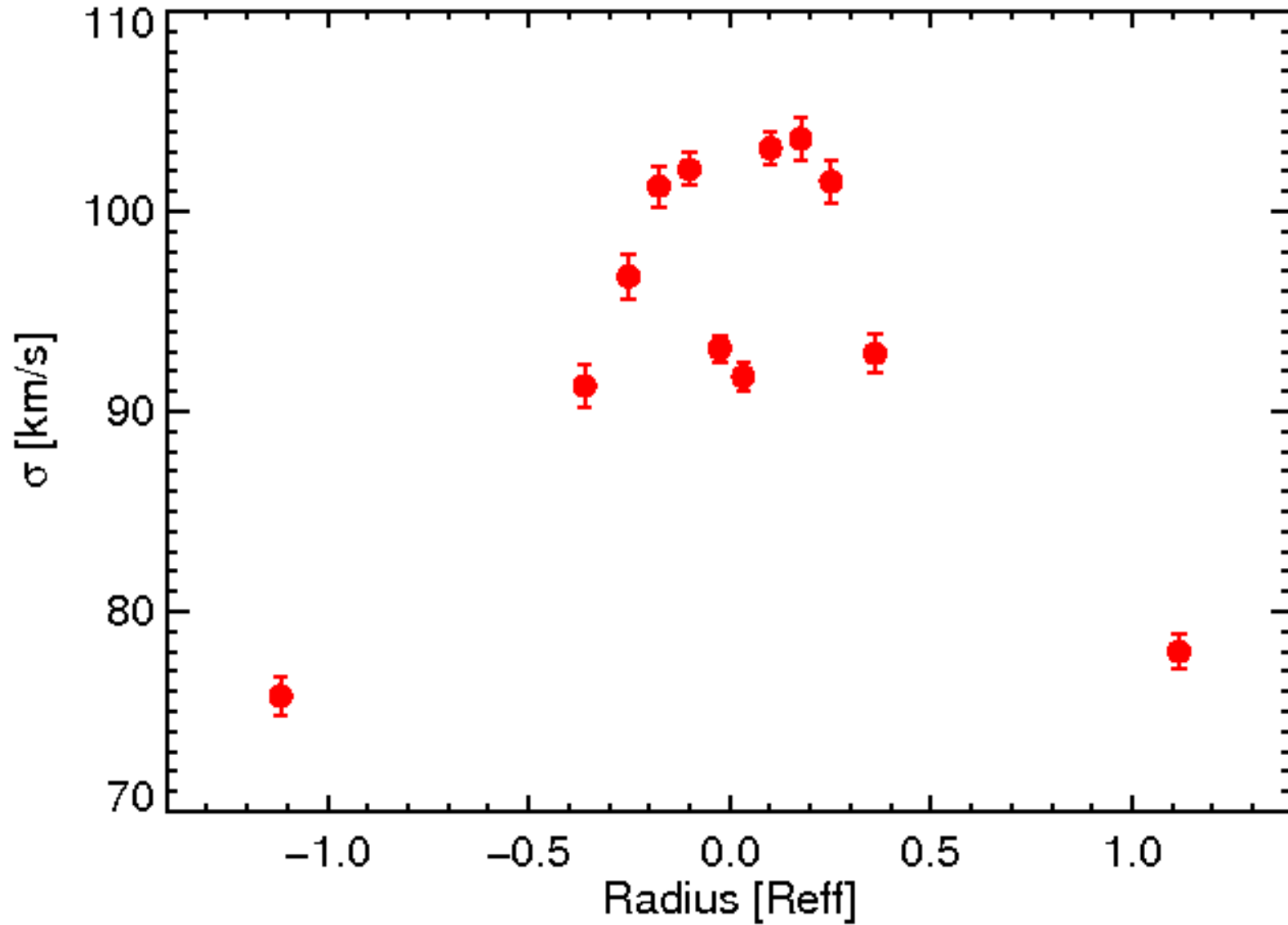
NGC 4552: qualitative analysis



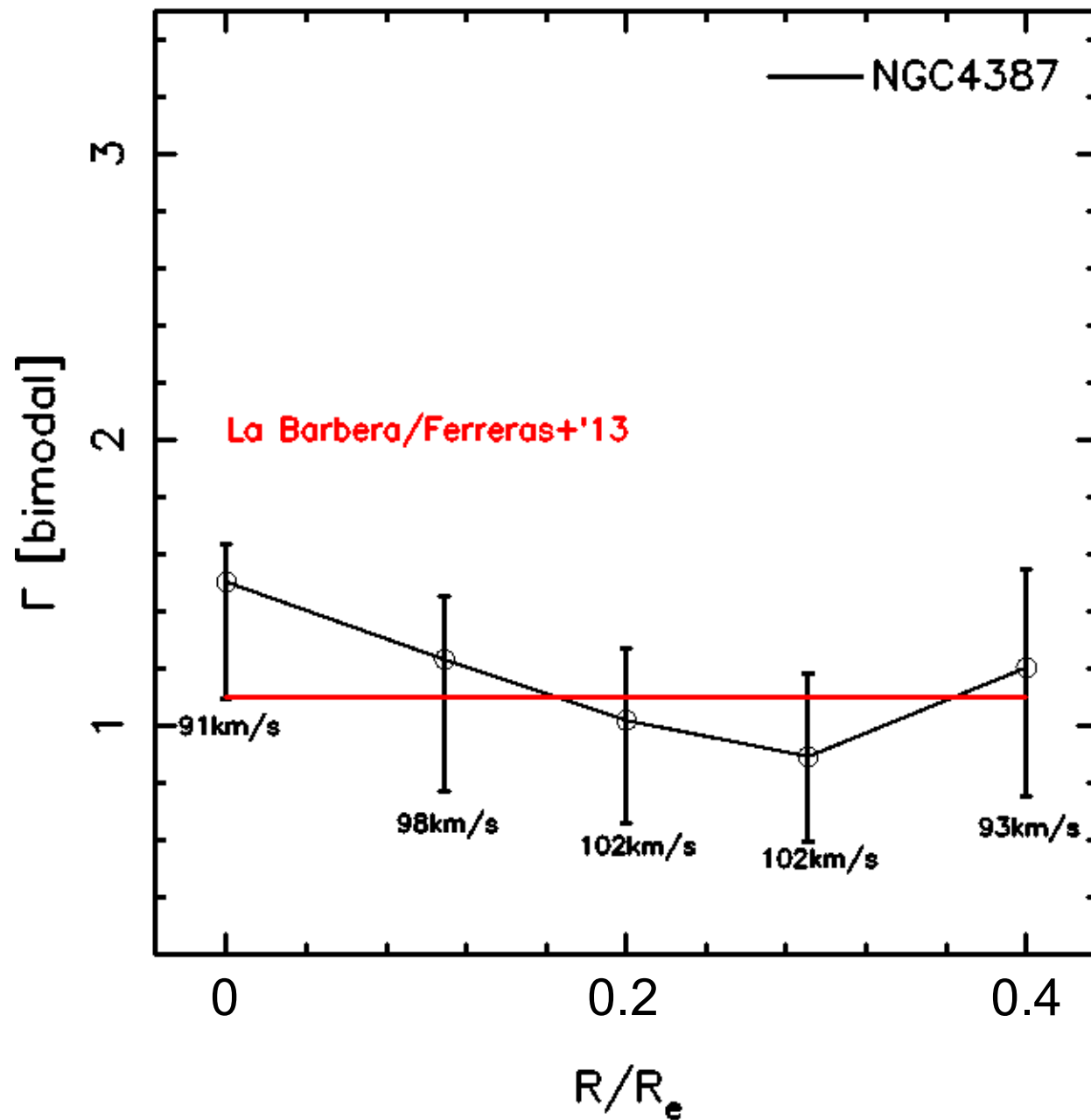
NGC 4552: IMF radial profile



NGC 4387: kinematics



NGC 4387: IMF radial profile



Takeaway message

- **NGC 4552 shows a steep IMF radial profile, varying from very bottom-heavy in the centre to a Kroupa-like slope at $1R_{\text{eff}}$**
- **NGC 4387 shows a rather flat IMF radial profile**
- **The IMF seems to depend more on the local conditions (density?) than on the global properties of the galaxy**

Stay tuned!



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