

# Bottom-heavy initial mass function in a nearby compact $L^*$ -galaxy

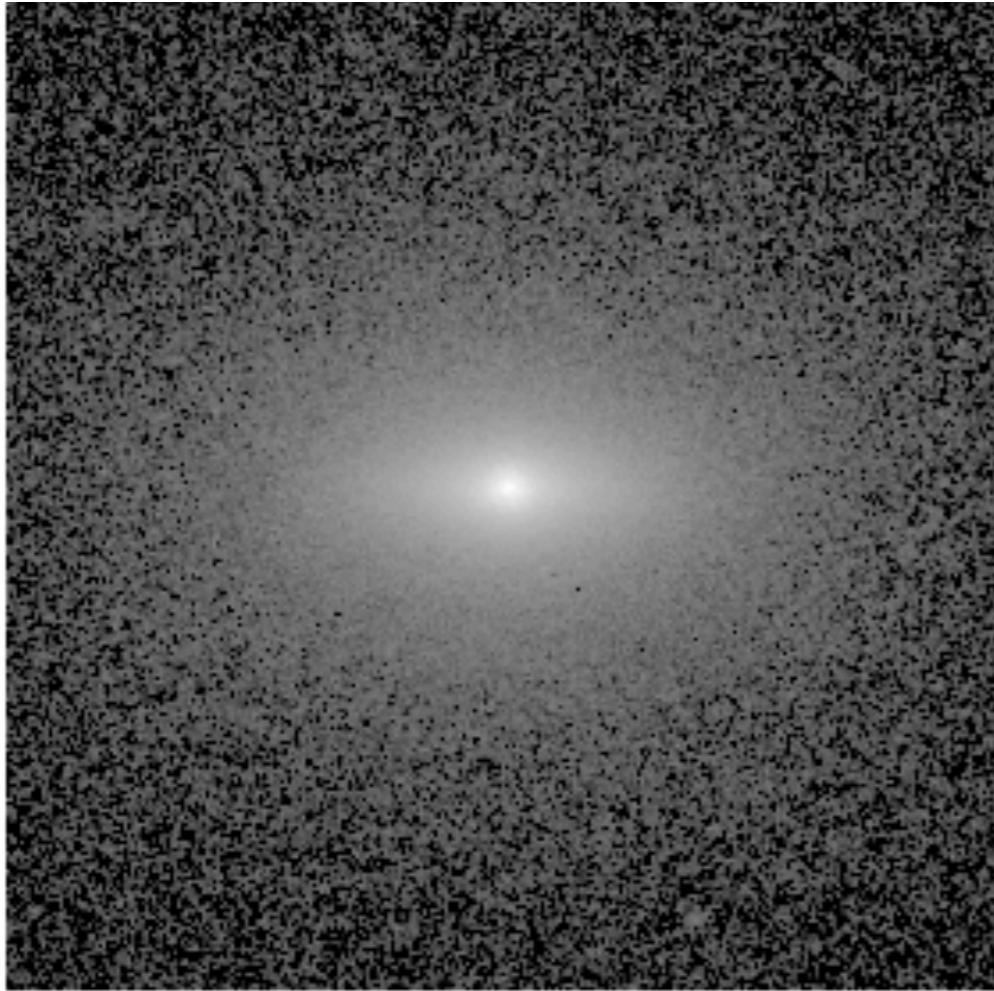
## Dynamical modeling and Stellar Population Analysis

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<sup>1</sup>MPIA Heidelberg; <sup>2</sup>Mullard Space Science Laboratory, UCL; <sup>3</sup>INAF Napoli; <sup>4</sup>Instituto de Astrofísica de Canarias

A nearby compact L<sup>\*</sup>-galaxy: “b19” (Bernardi+08, Hyde+08)

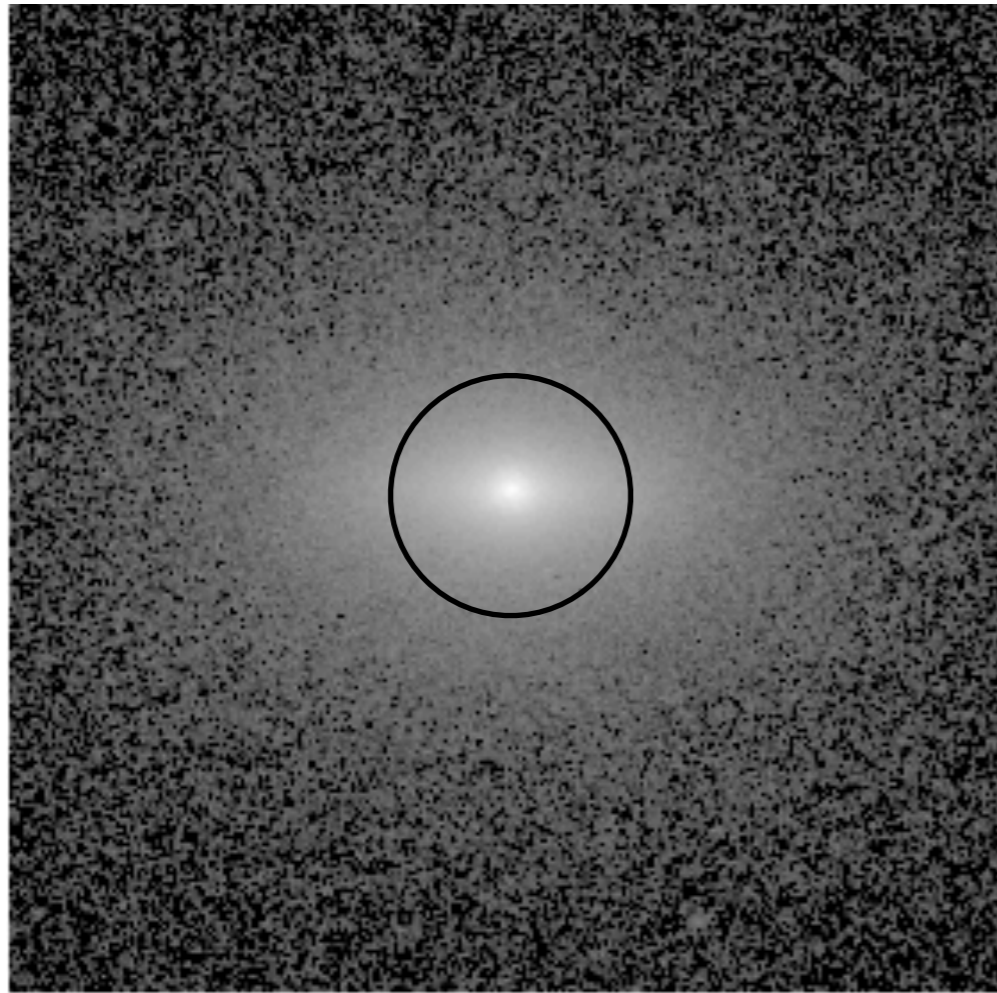
**b19**



— 15 kpc —

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**b19**

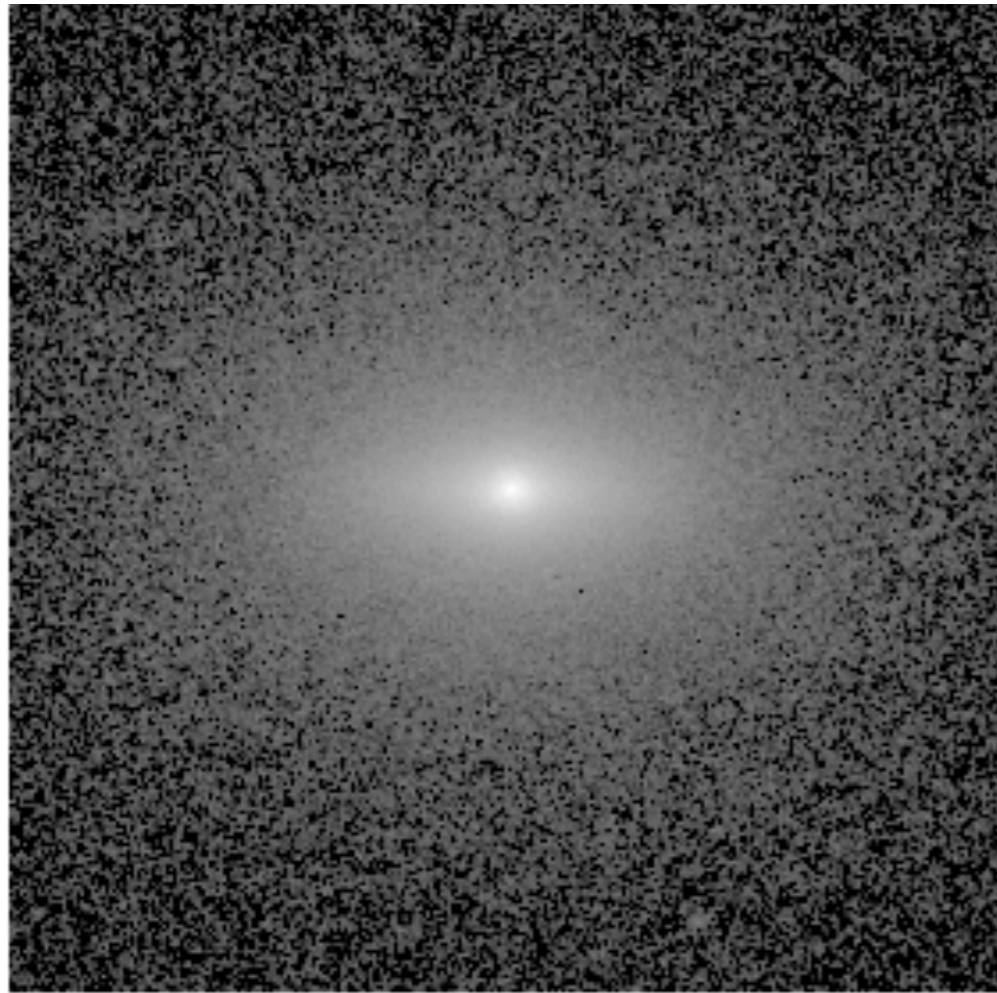


$R_e = 1.9 \text{ kpc}$

15 kpc

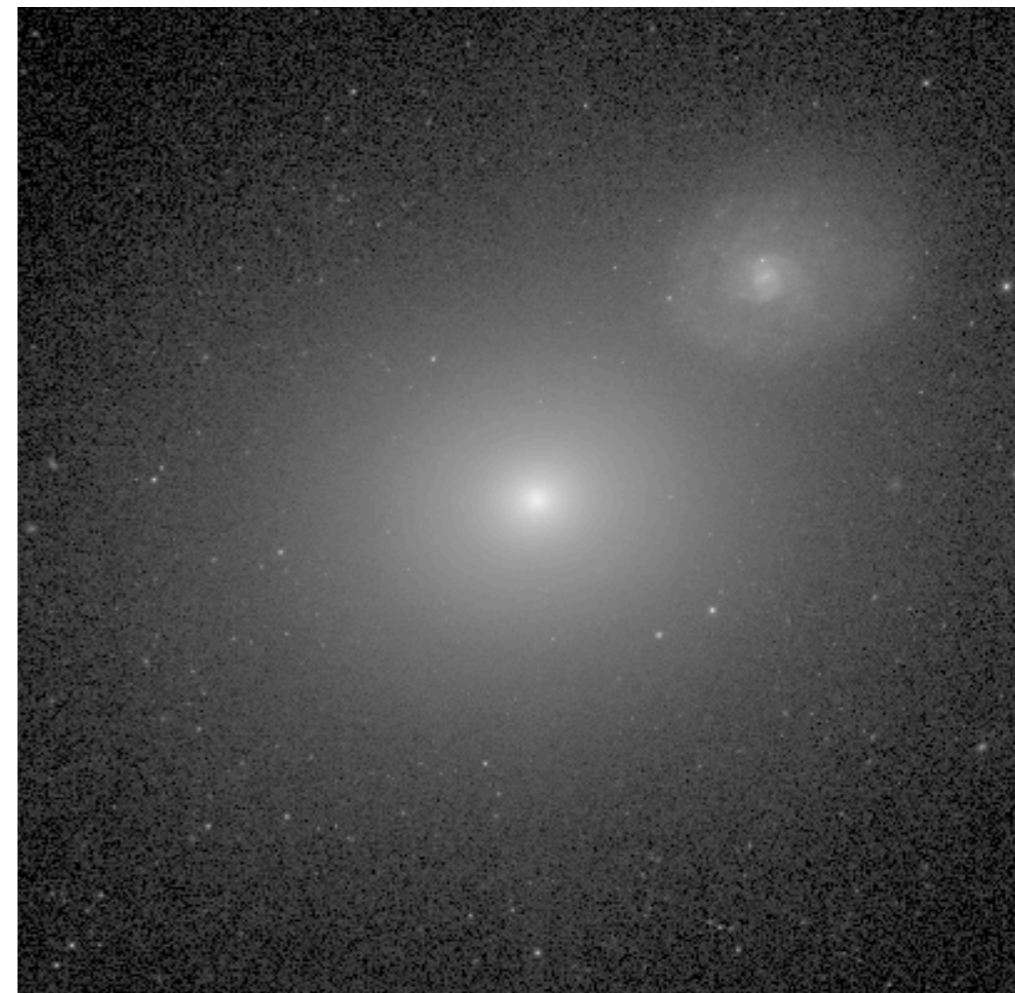
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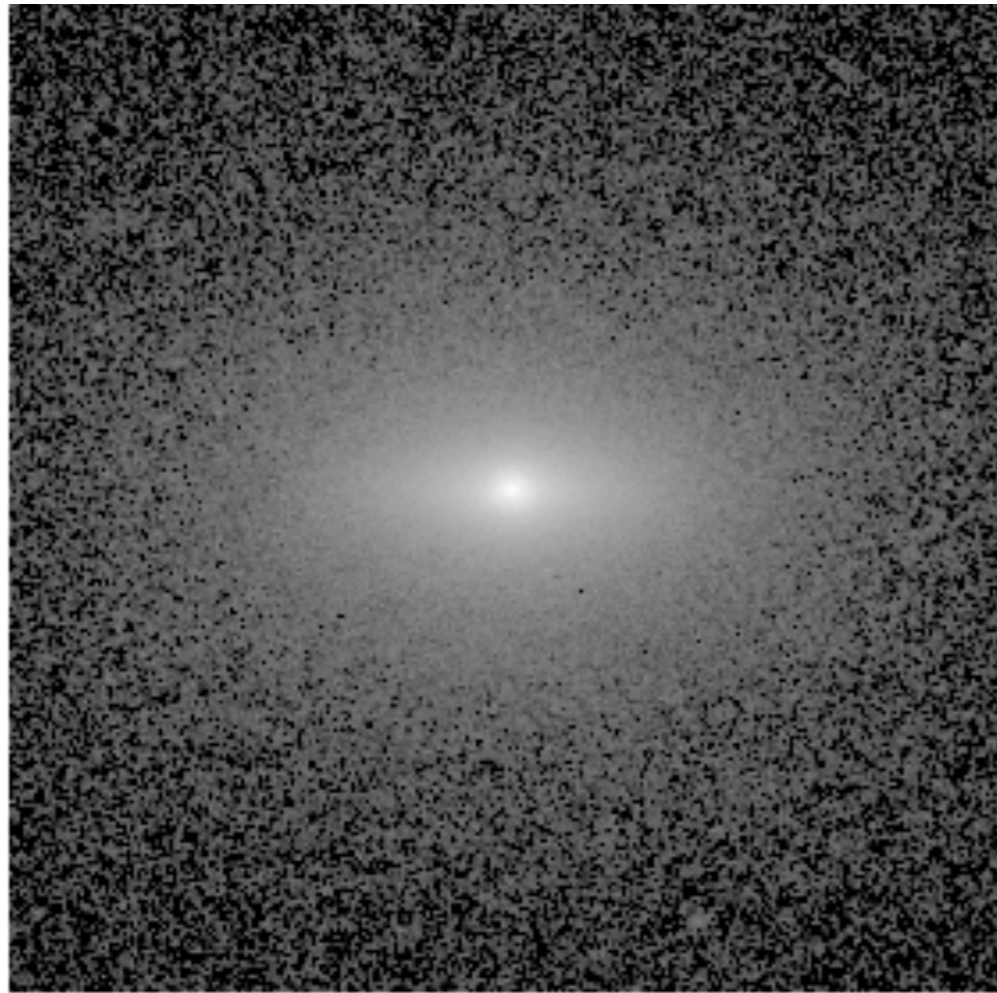
**M60**



40 kpc

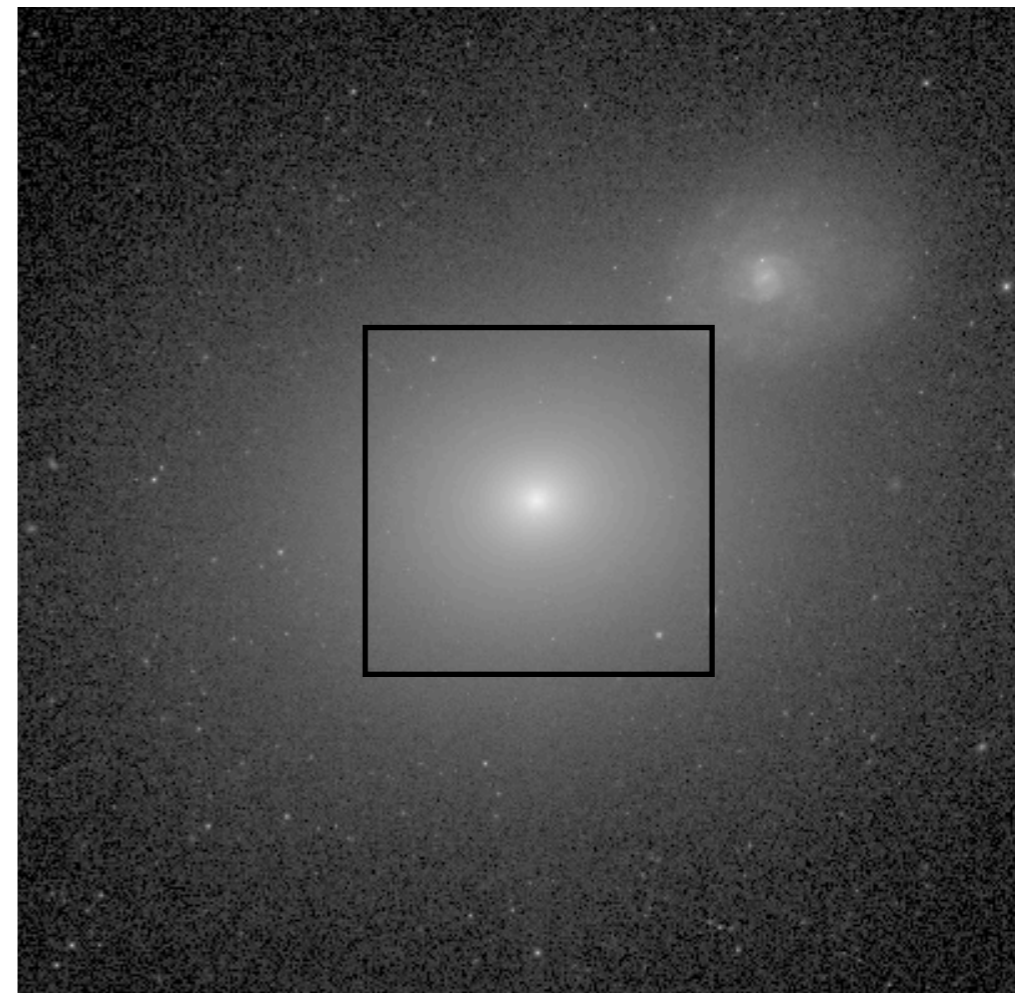
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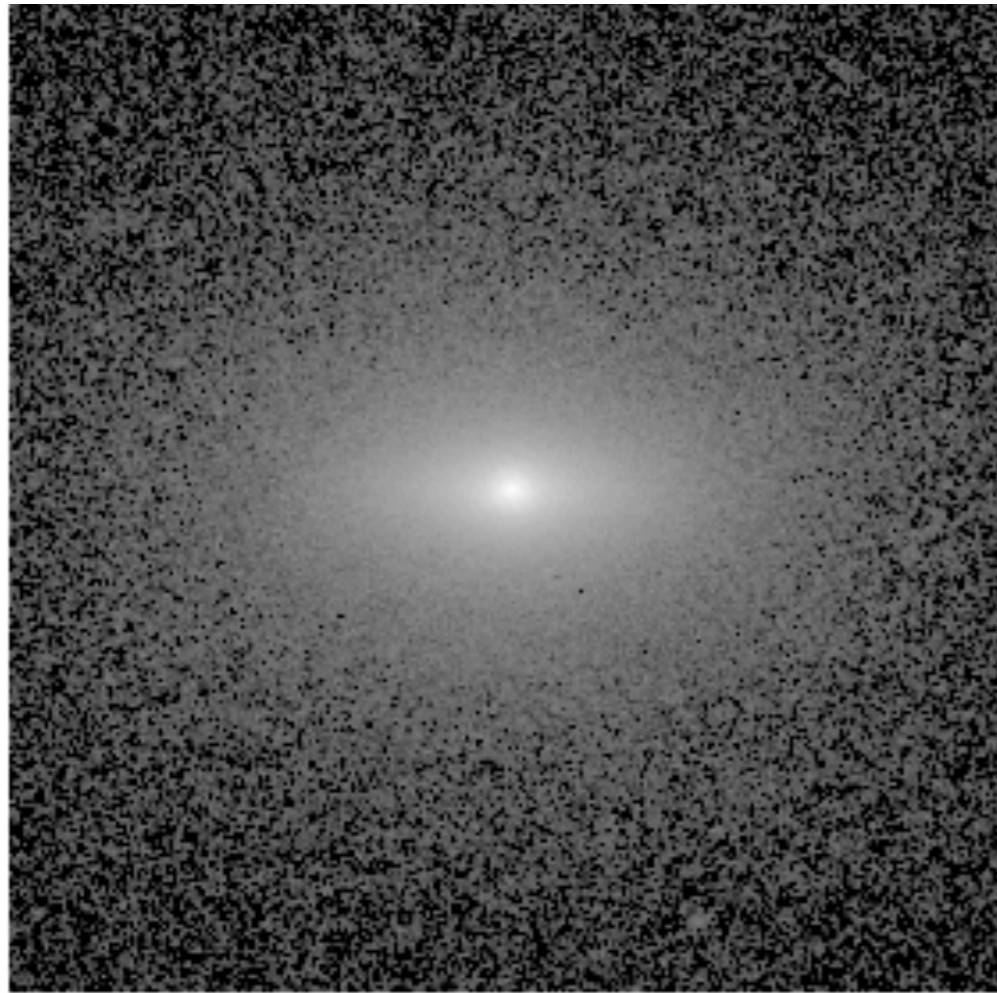
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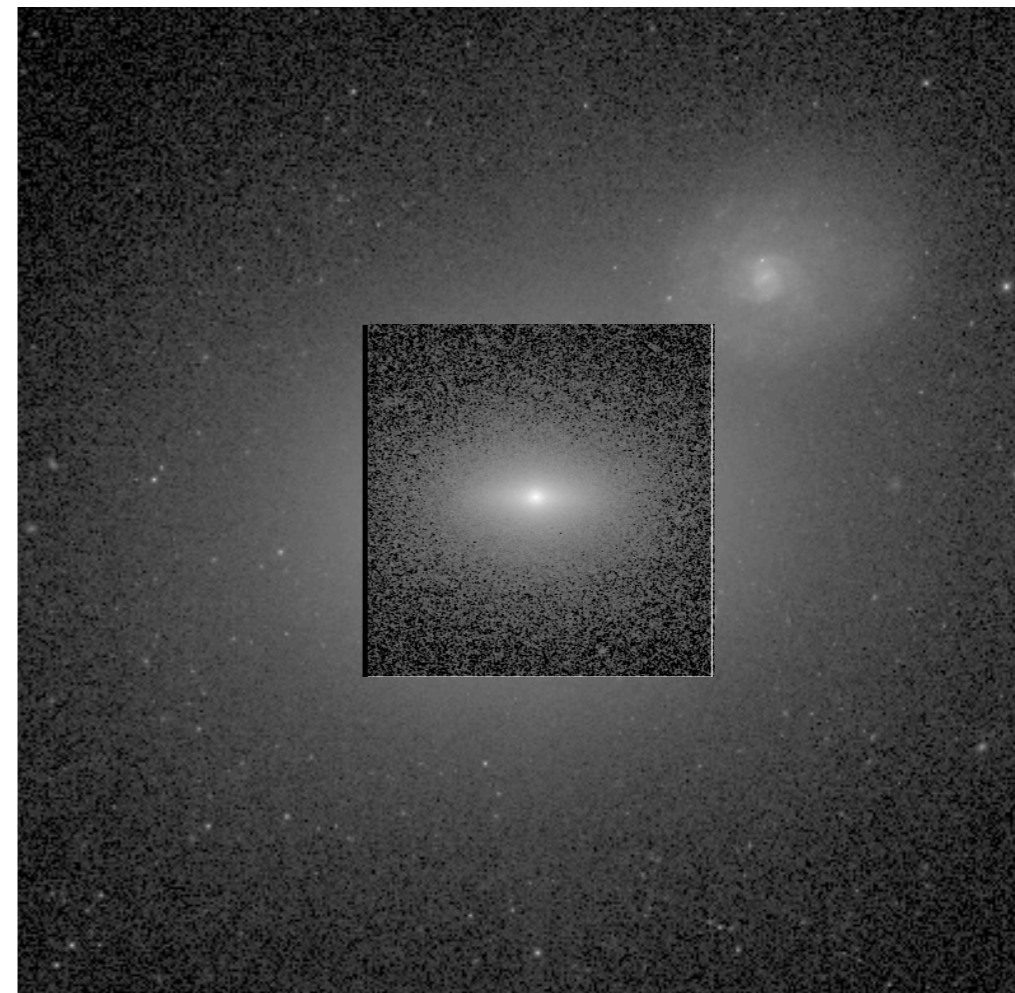
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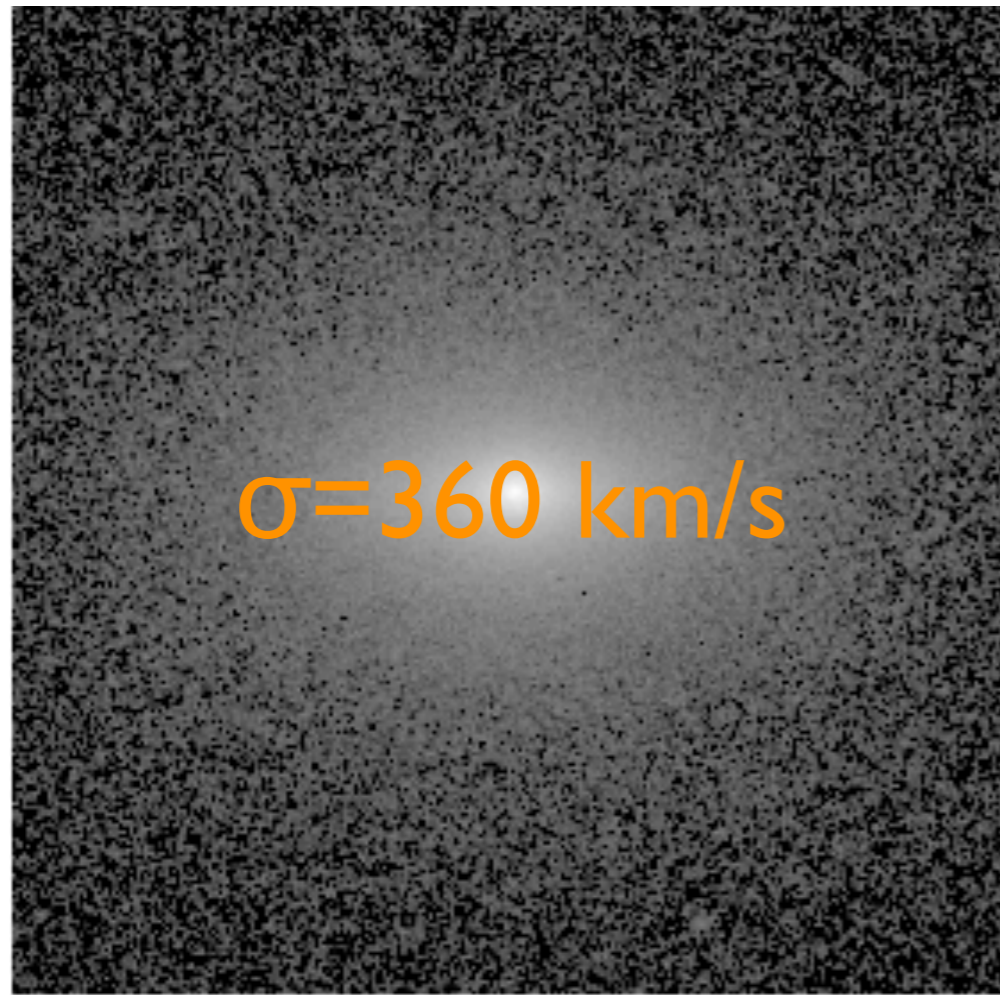
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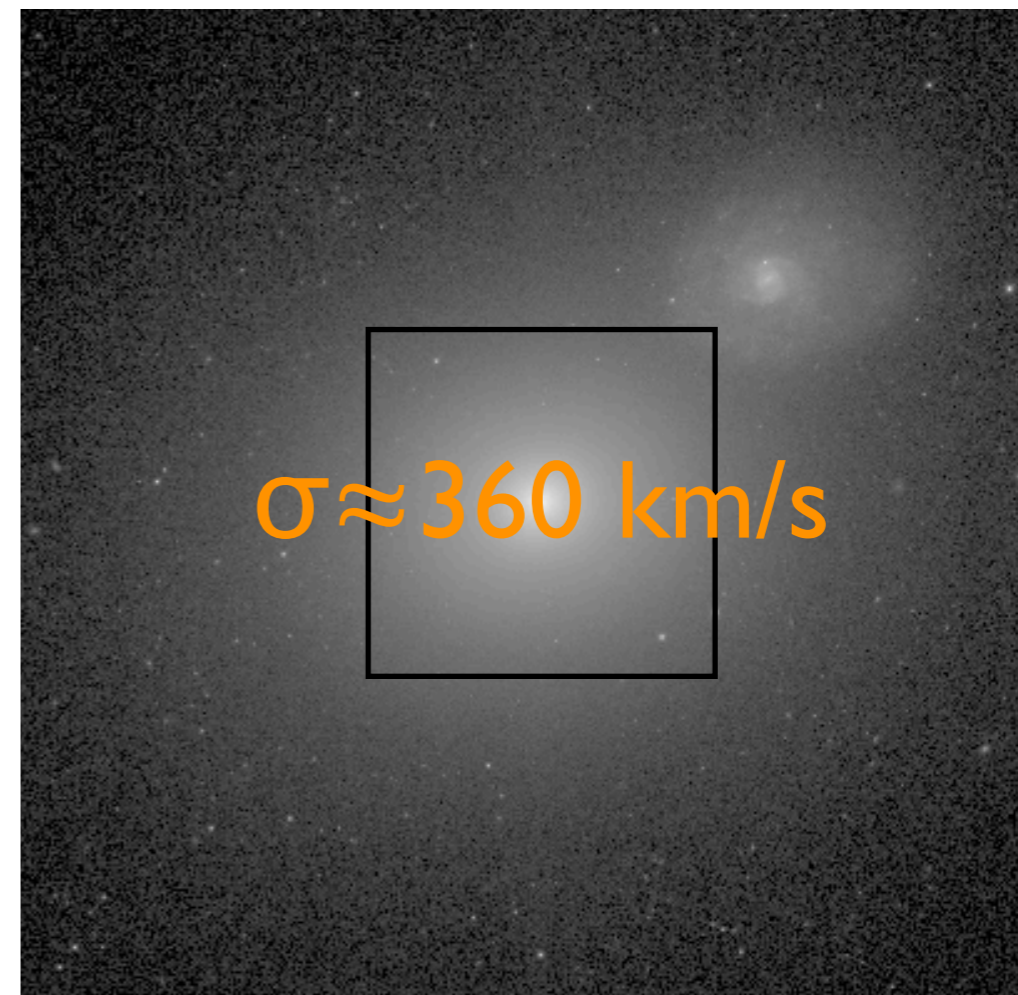
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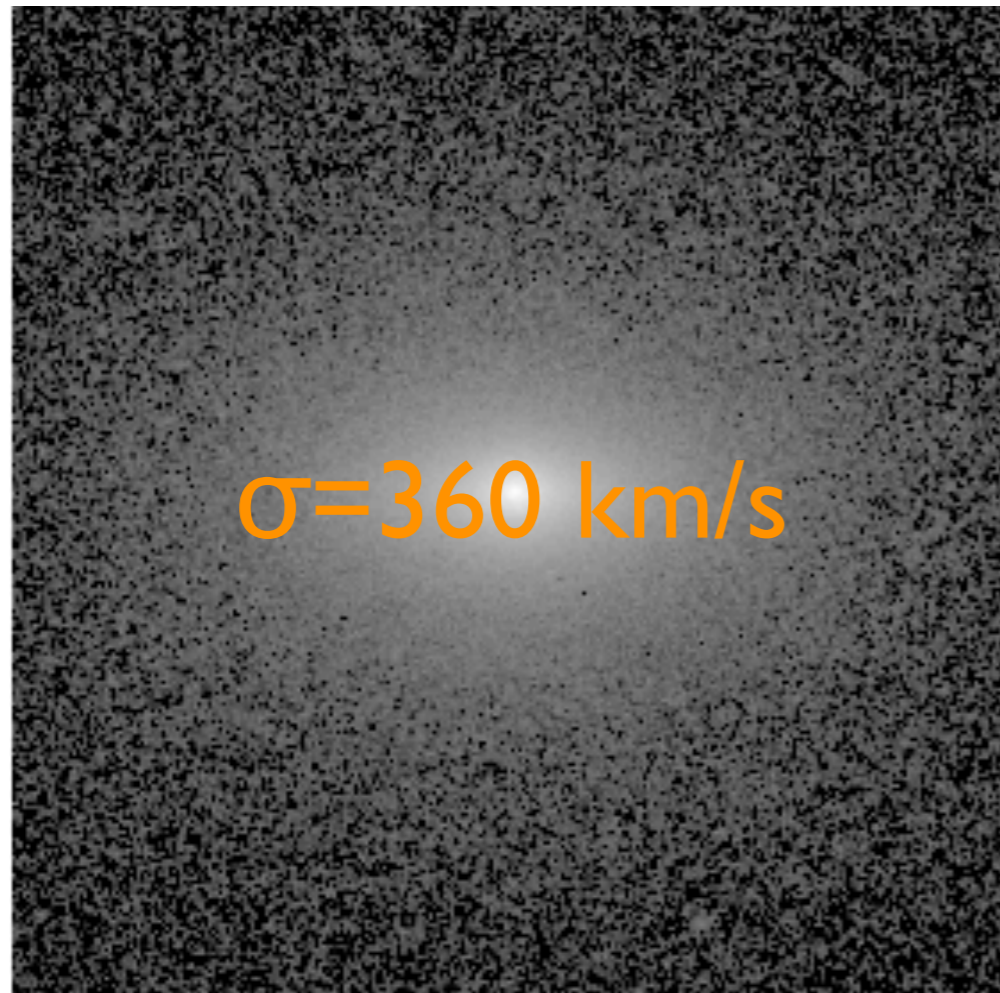
**M60**



40 kpc

A nearby compact L<sup>\*</sup>-galaxy: “b19” (Bernardi+08, Hyde+08)

**b19**



$\sigma=360$  km/s

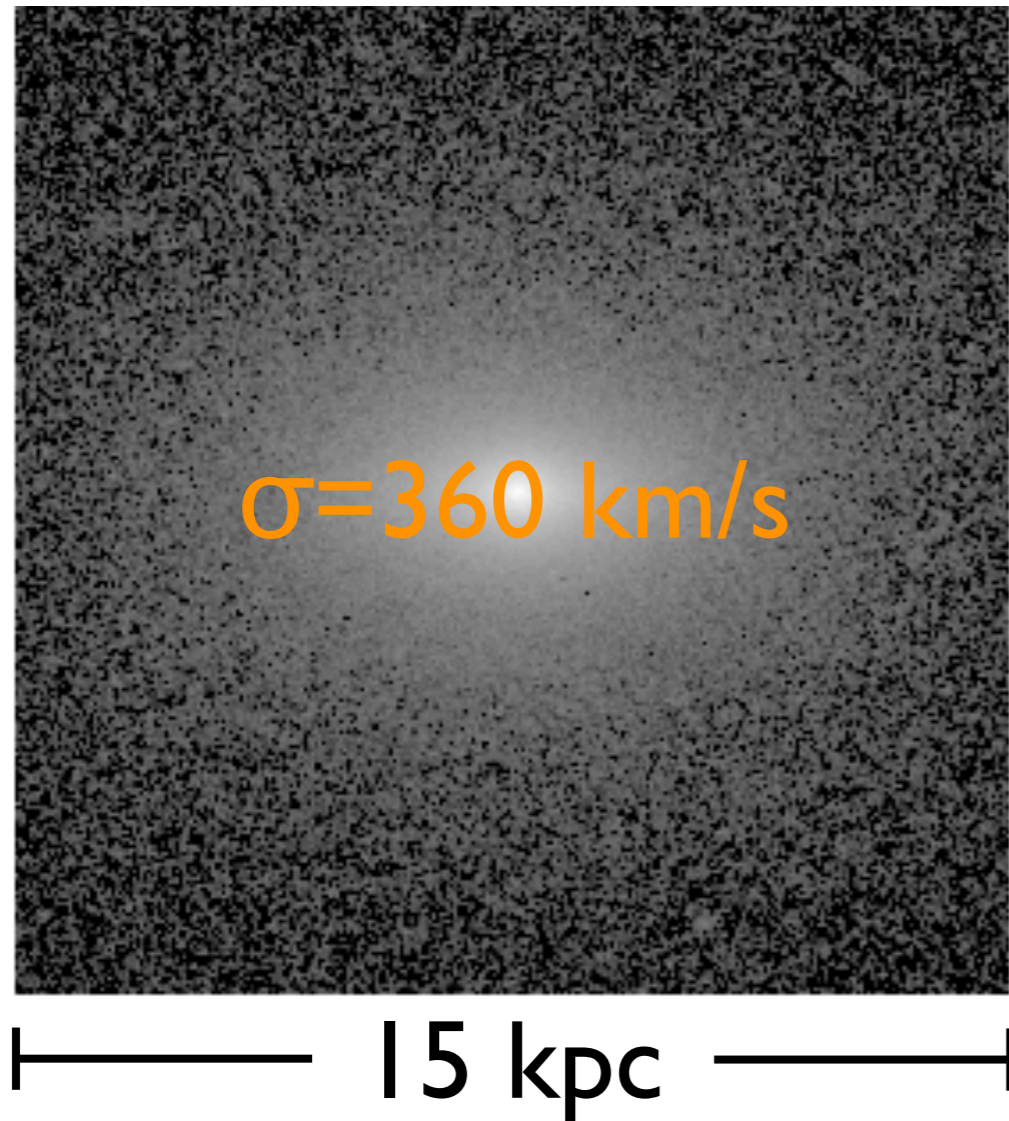
15 kpc

- flattened ( $q=0.6$ )
- embedded disk
- $R_e = 1.9$  kpc
- $L_i = 4.7 \times 10^{10} L_{\odot}$



# A nearby compact L<sup>\*</sup>-galaxy: “b19” (Bernardi+08, Hyde+08)

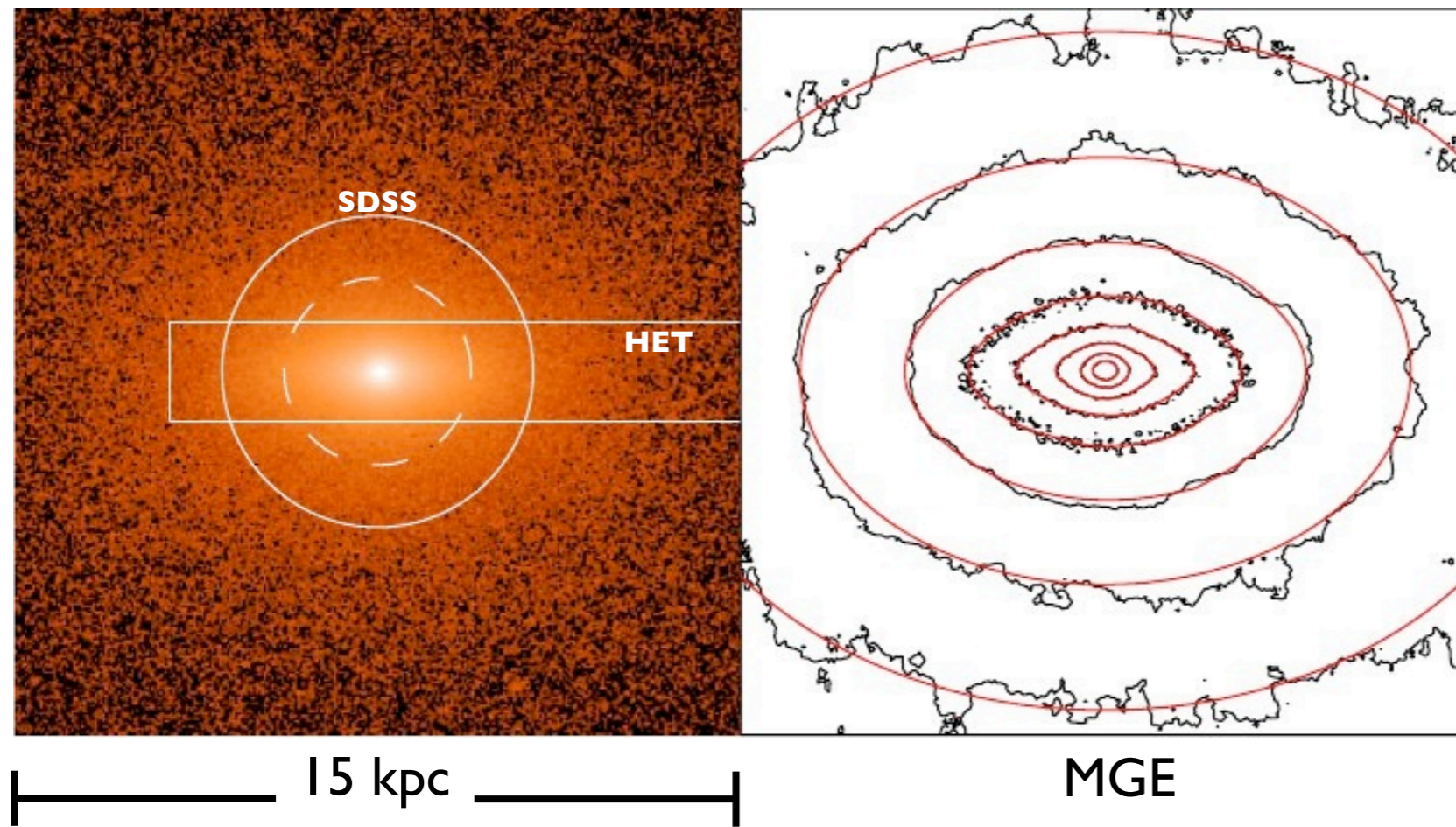
## b19



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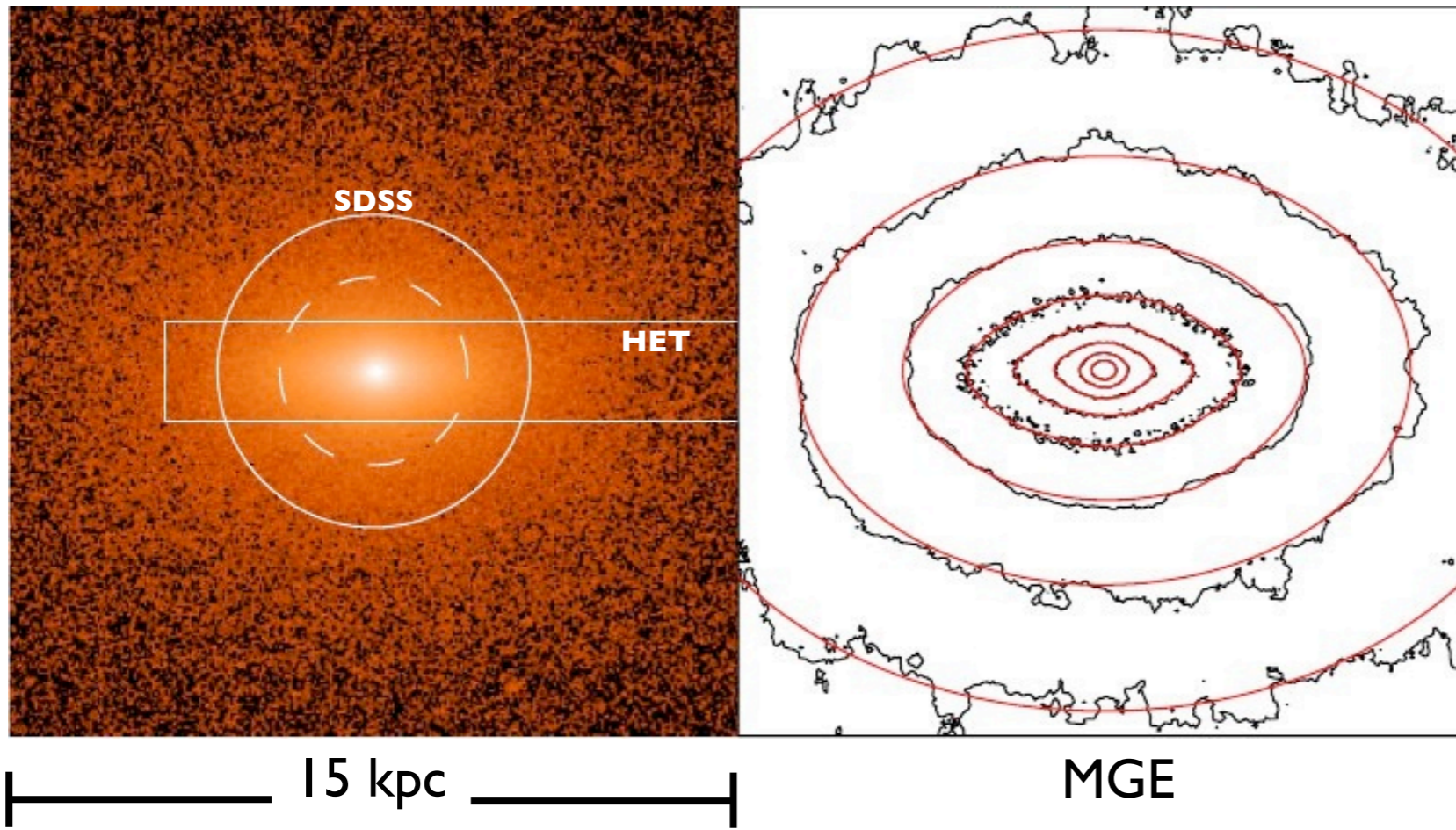
- steep profile?
- stellar M/L ?
- Übermassive Black Hole?  
(cf. NGC1277, vdBosch+12)
- Dark Matter?

# Dynamical Models: Schwarzschild Method



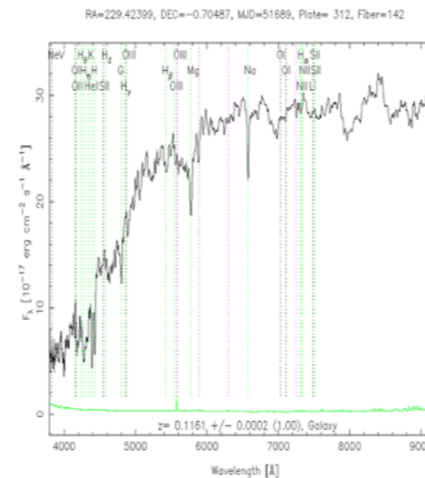
- high-res imaging: HST/ACS

# Dynamical Models: Schwarzschild Method

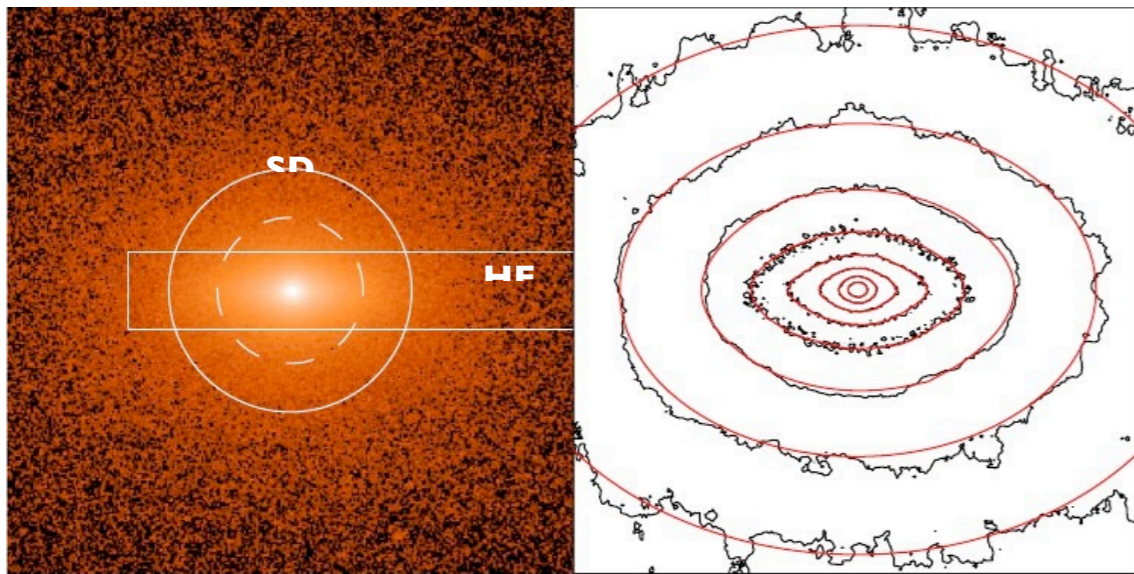


MGE

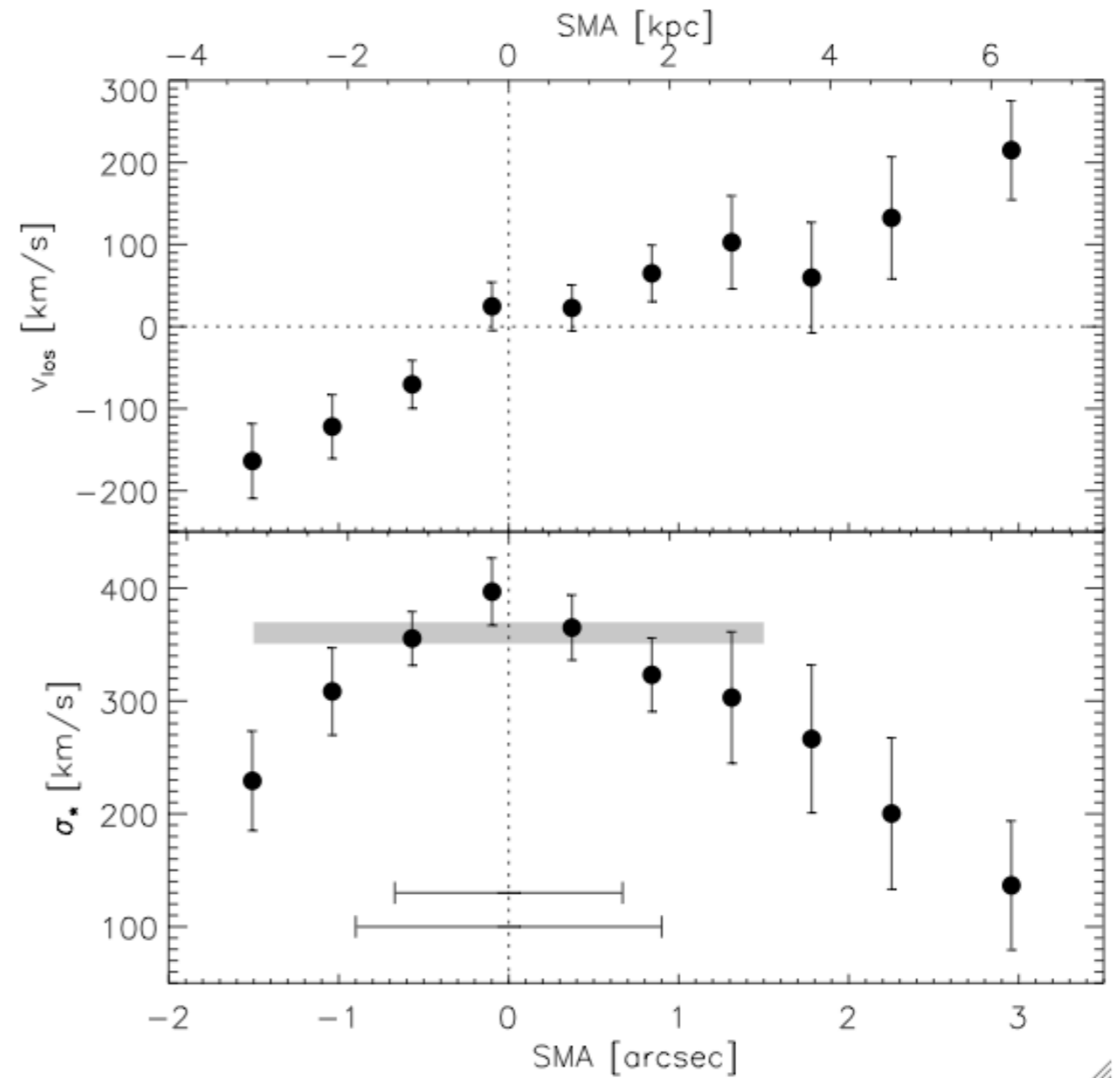
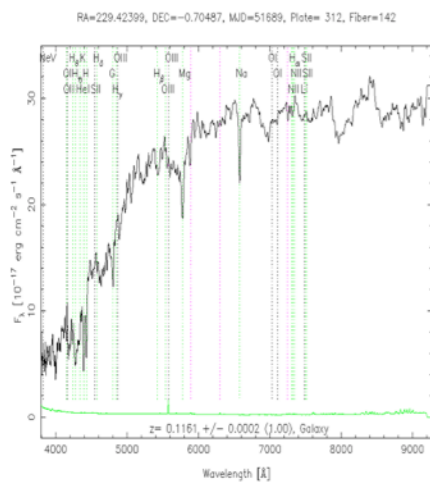
- high-res imaging: HST/ACS
- spectrum: SDSS + HET/LRS



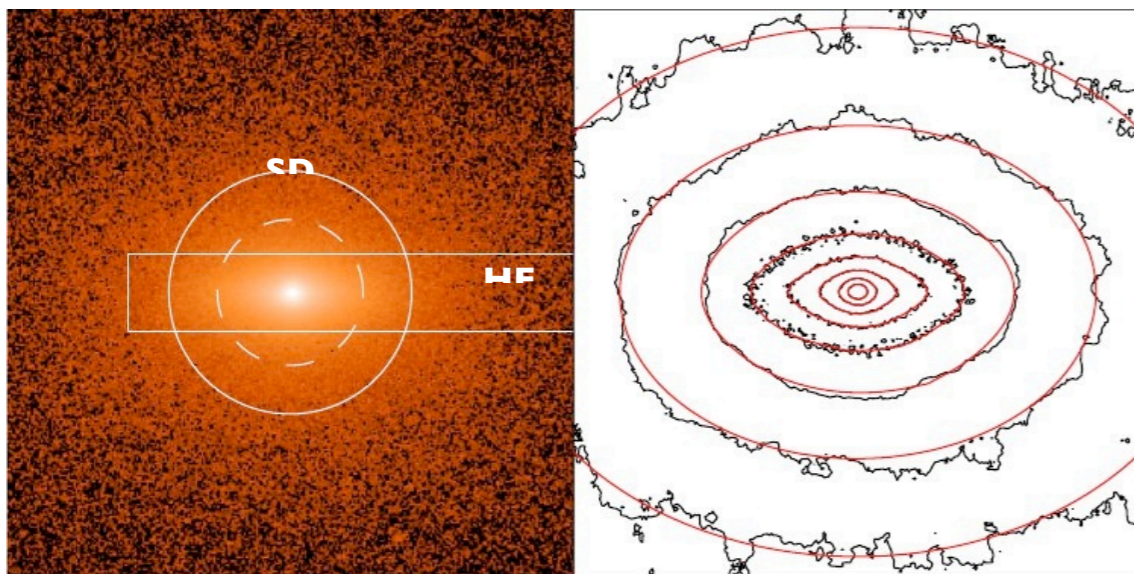
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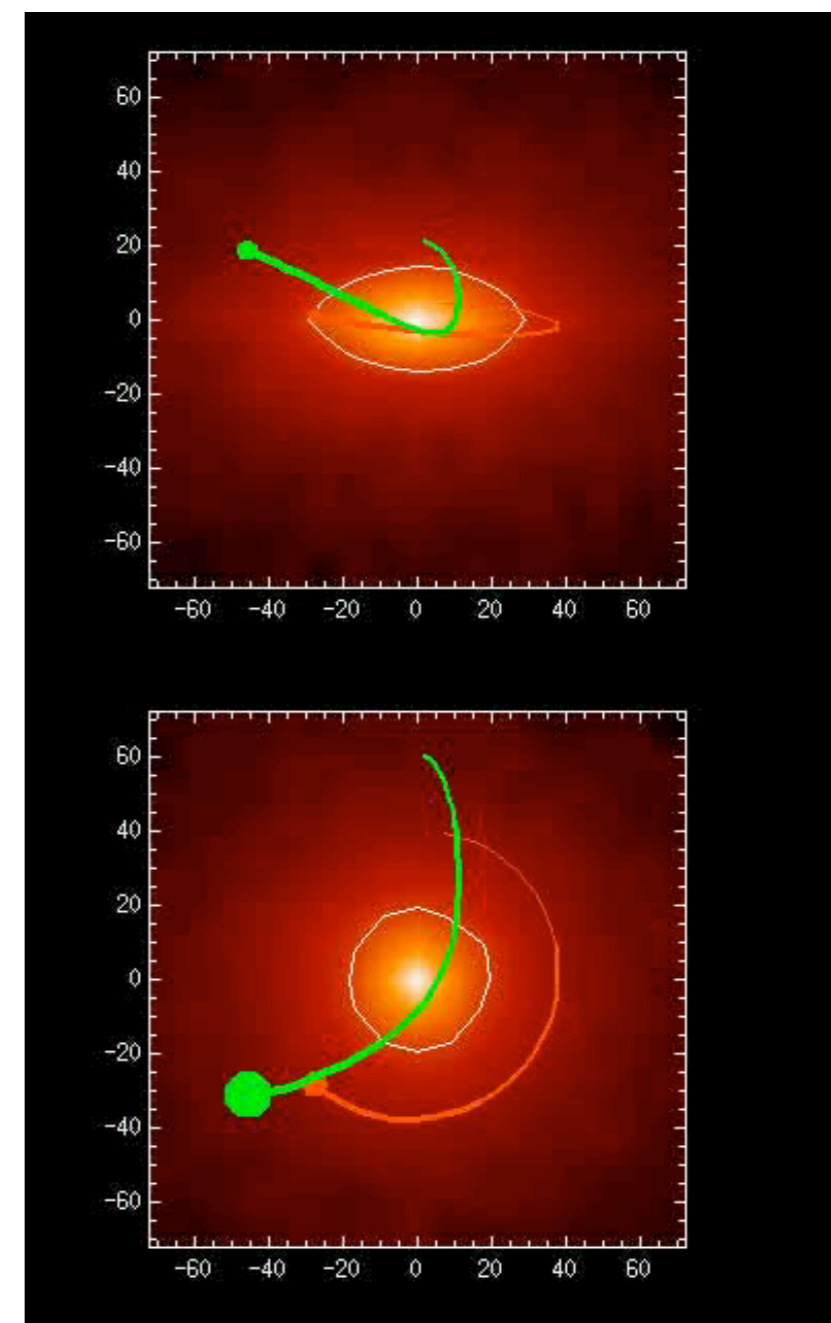
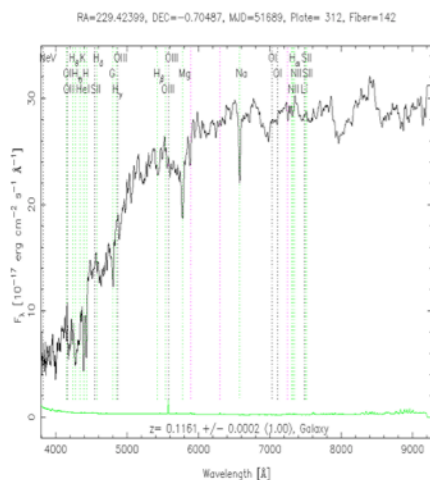
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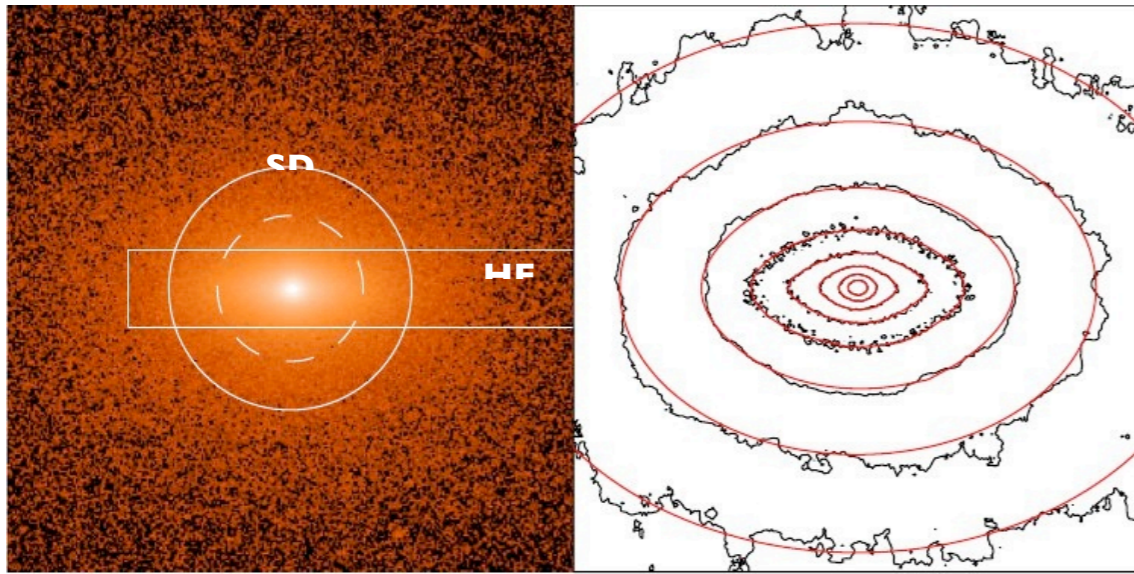


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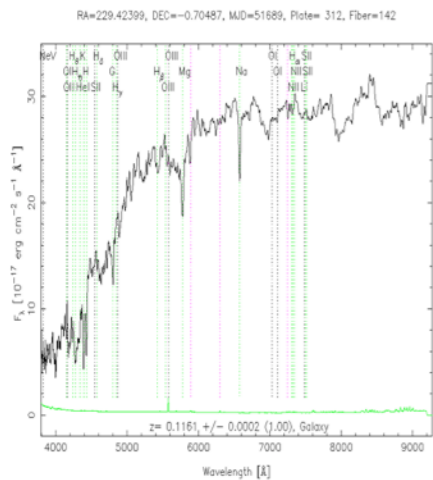


orbit  
superposition

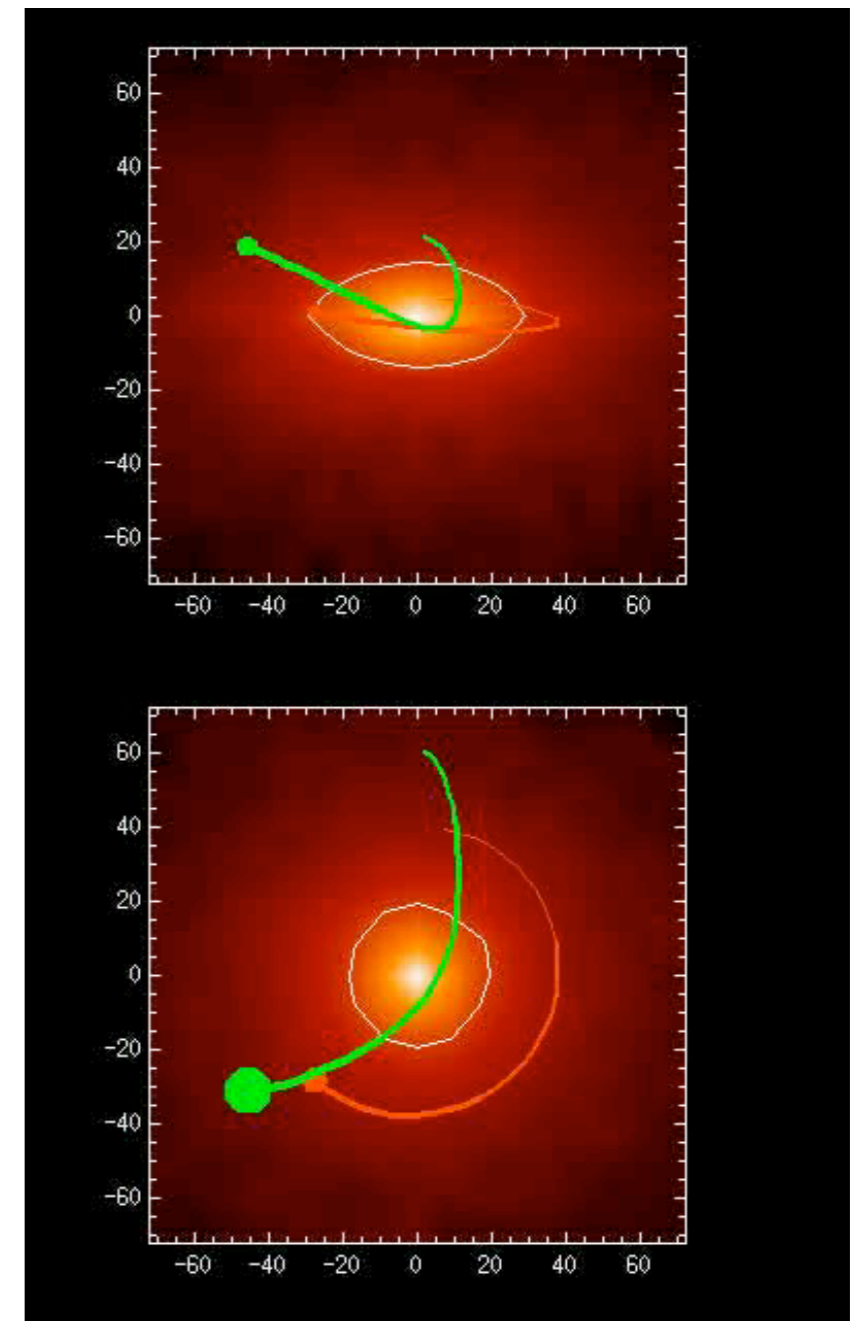
# Dynamical Models: Schwarzschild Method



- high-res imaging: HST/ACS
- spectrum: SDSS + HET/LRS

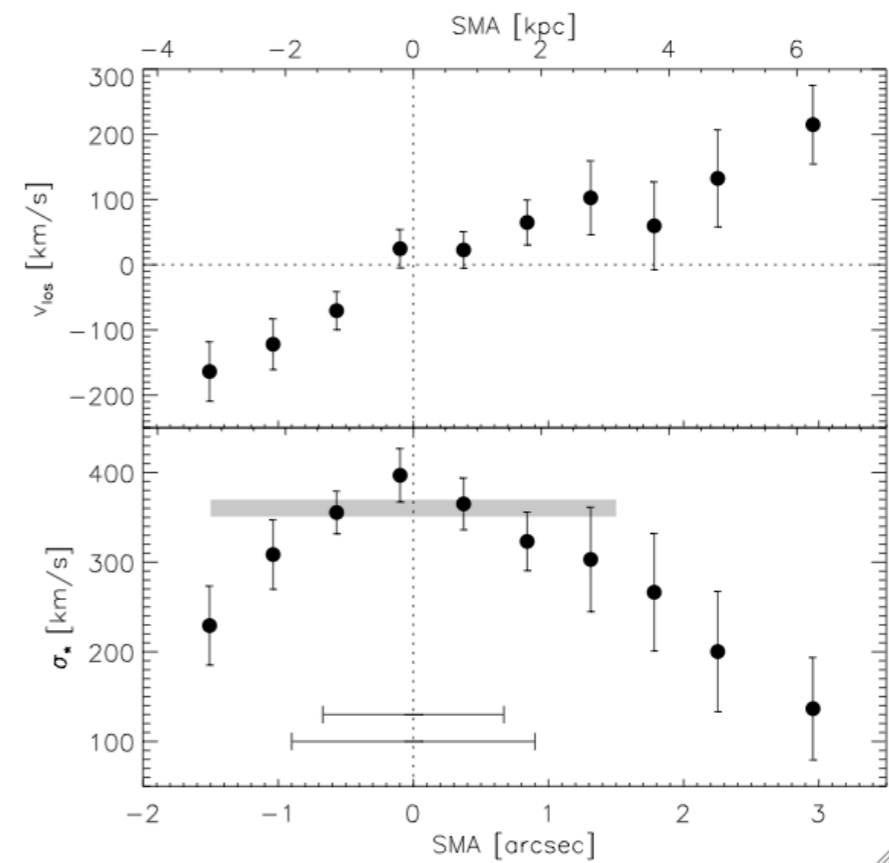
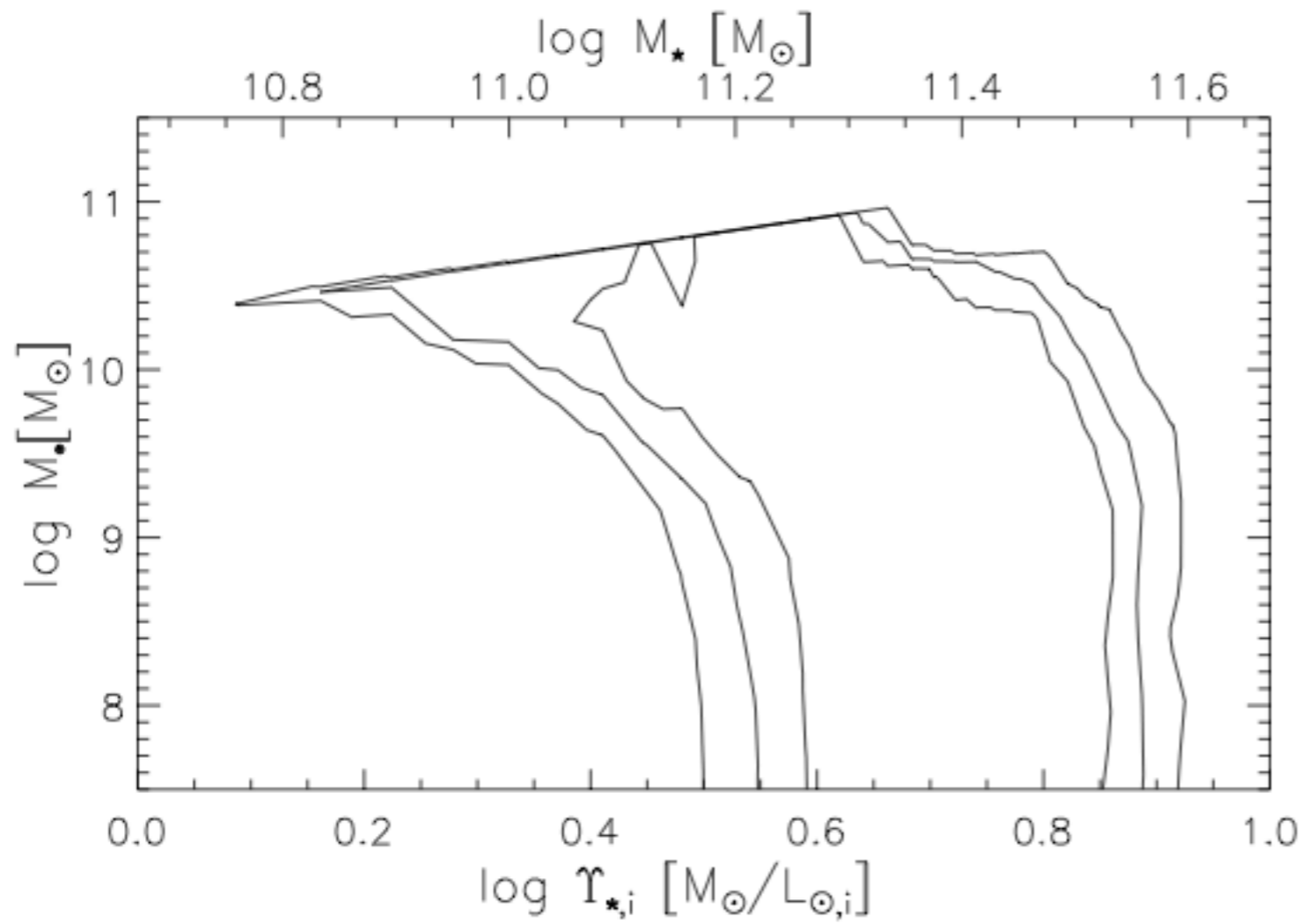


- components:  
Stars ( $\Upsilon=M/L$ ) + BH( $M_{\bullet}$ ) + DM (NFW)

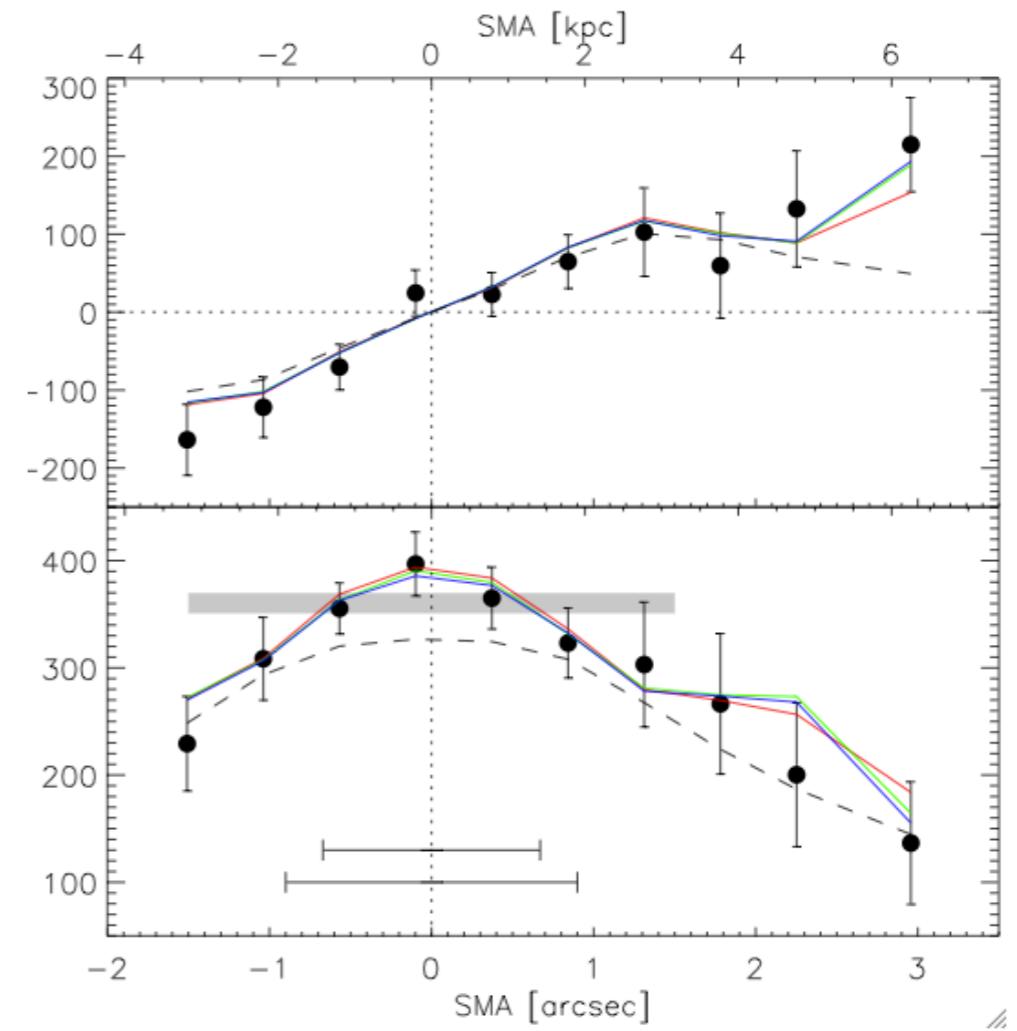
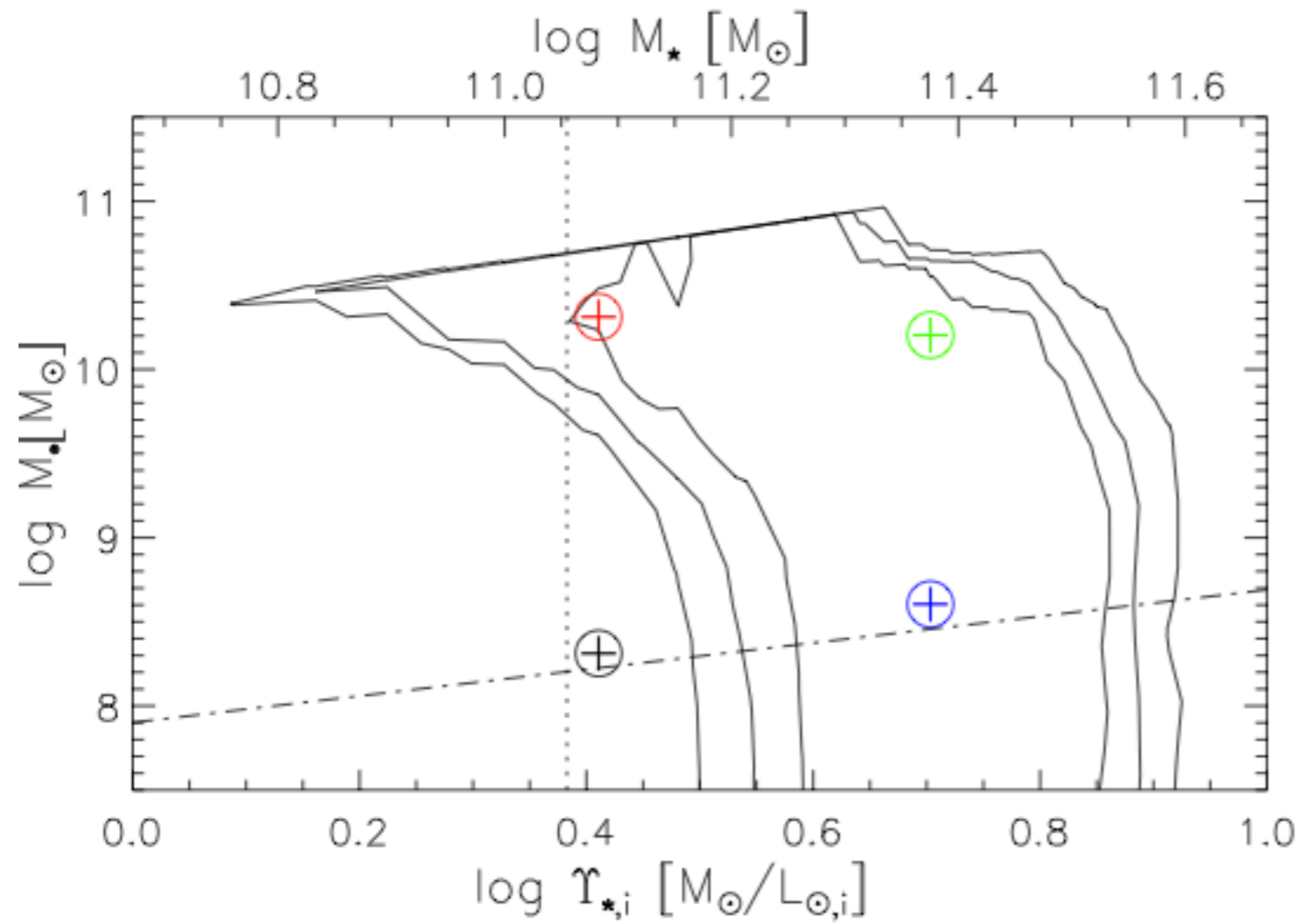


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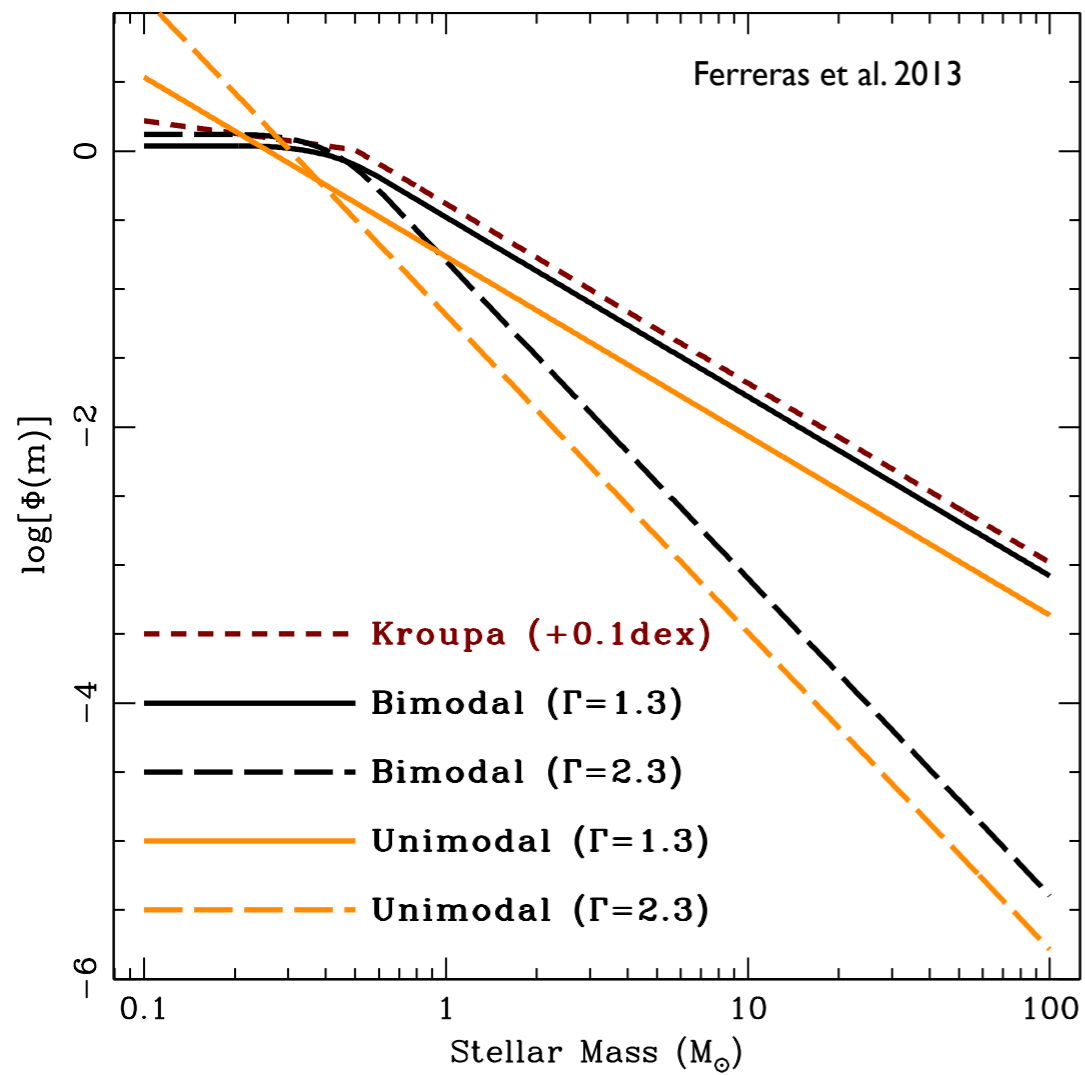


# Dynamical Models: Schwarzschild Method

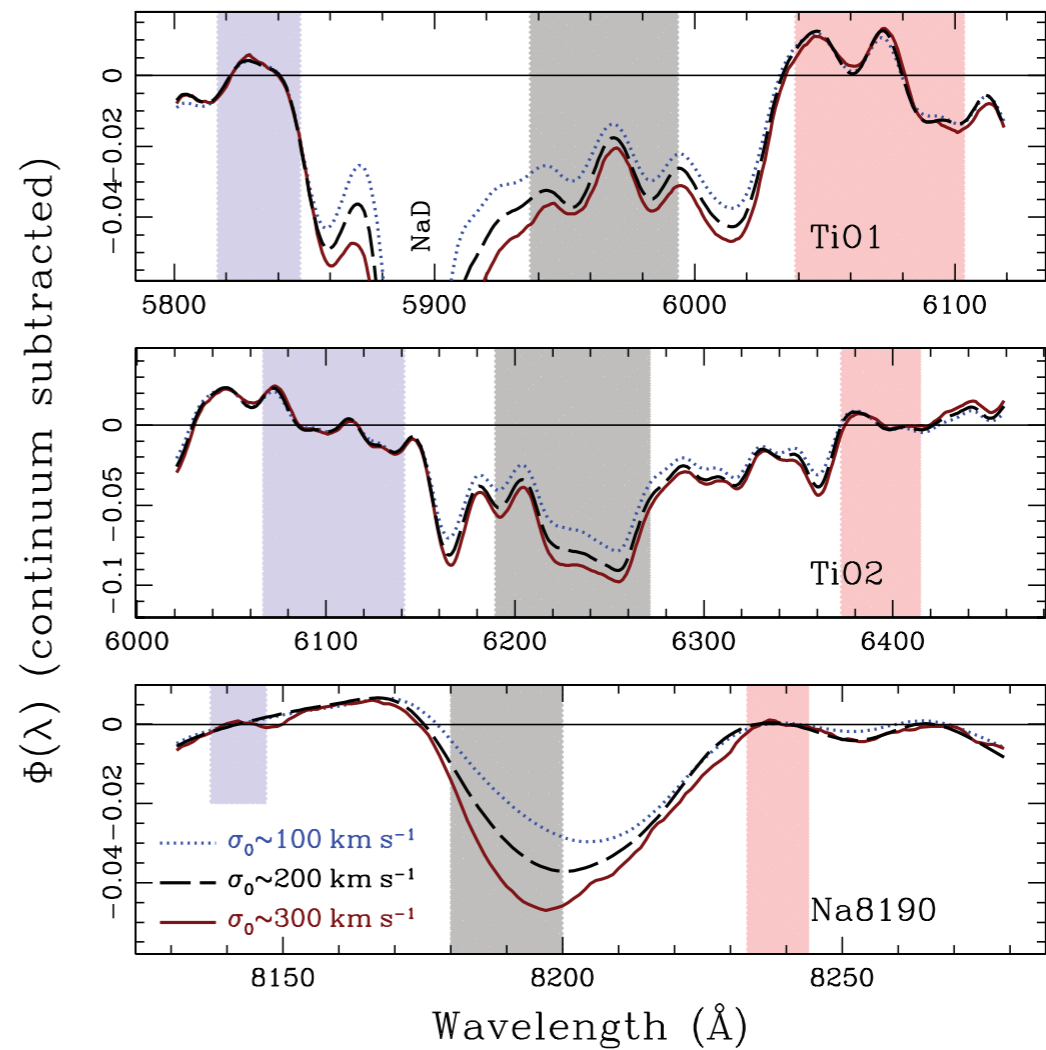
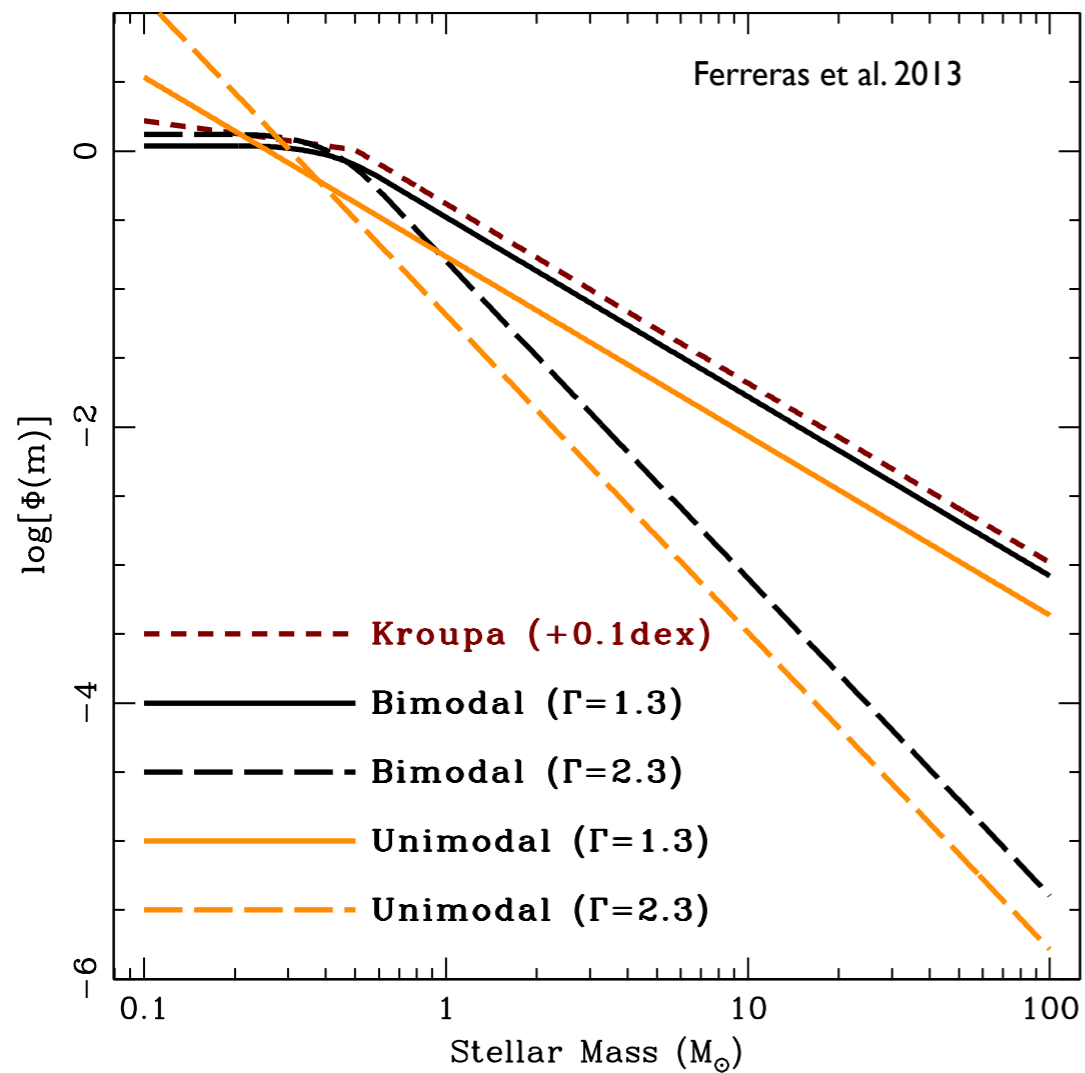




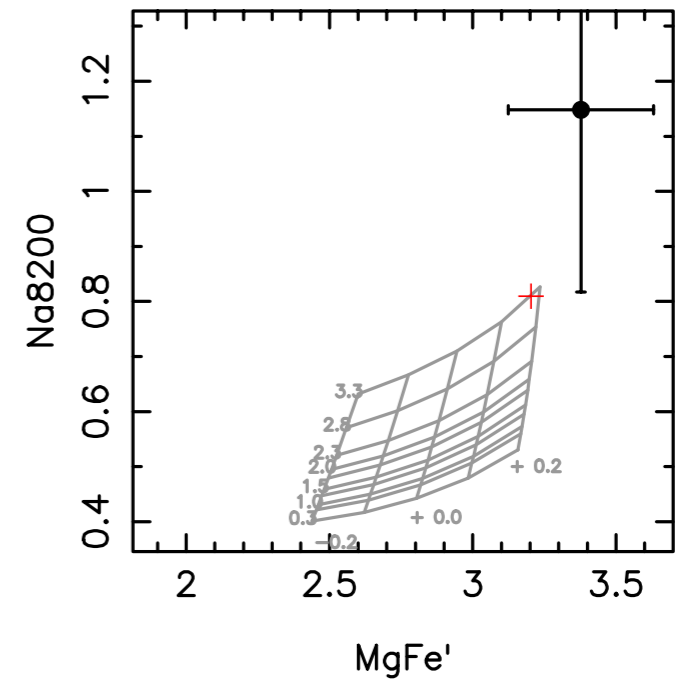
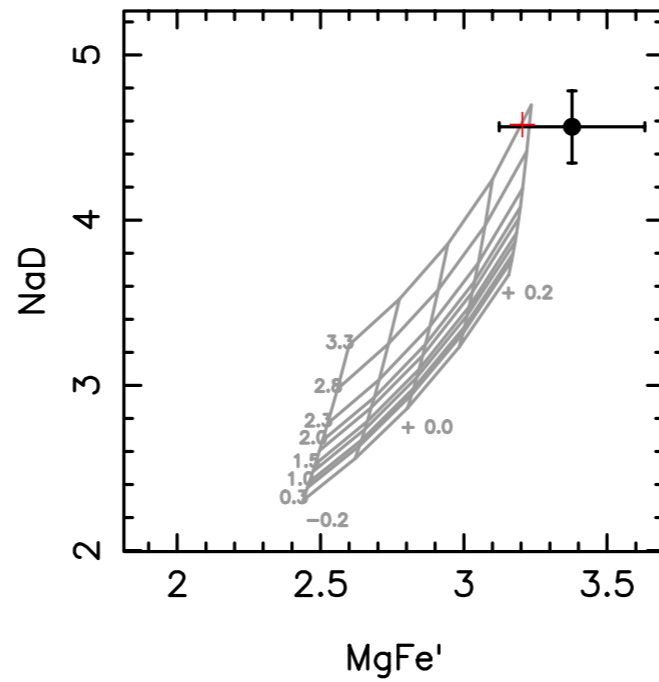
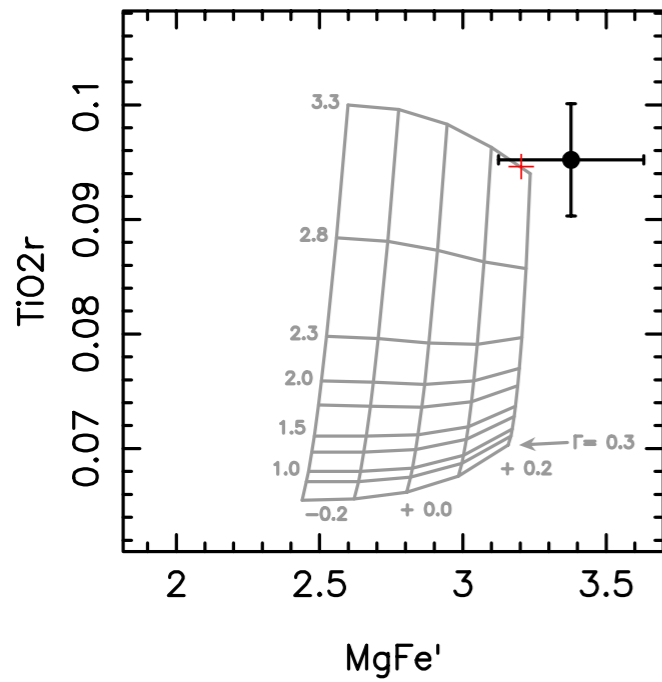
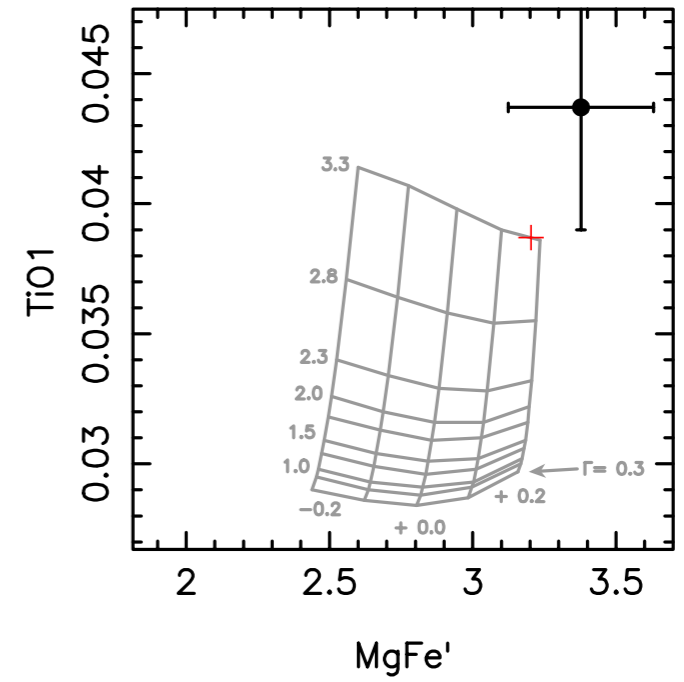
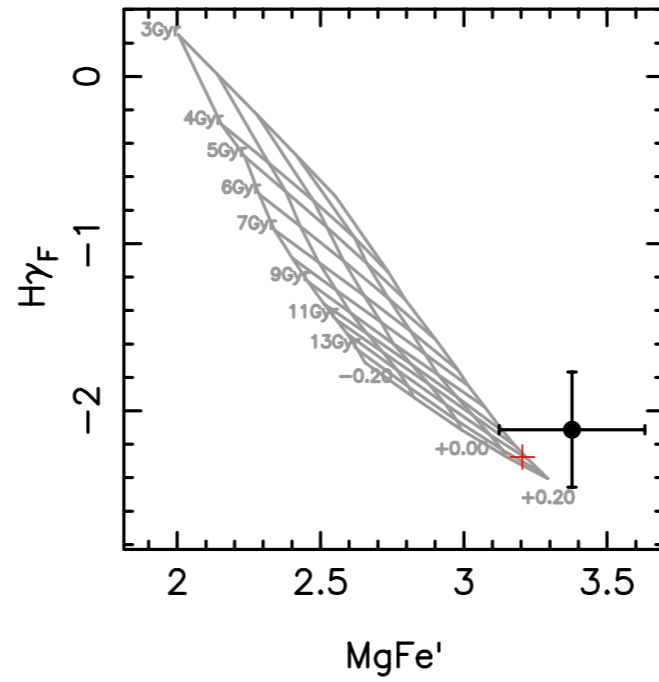
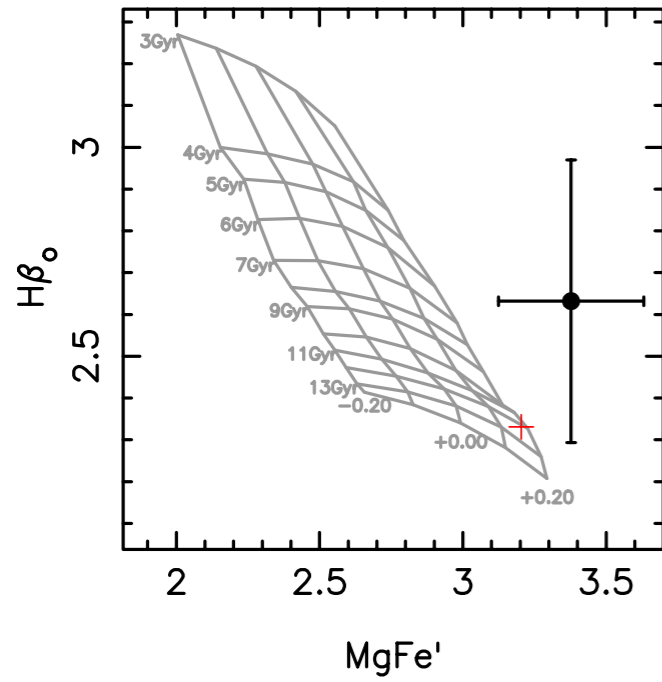
# Stellar Population Analysis: Hybrid method



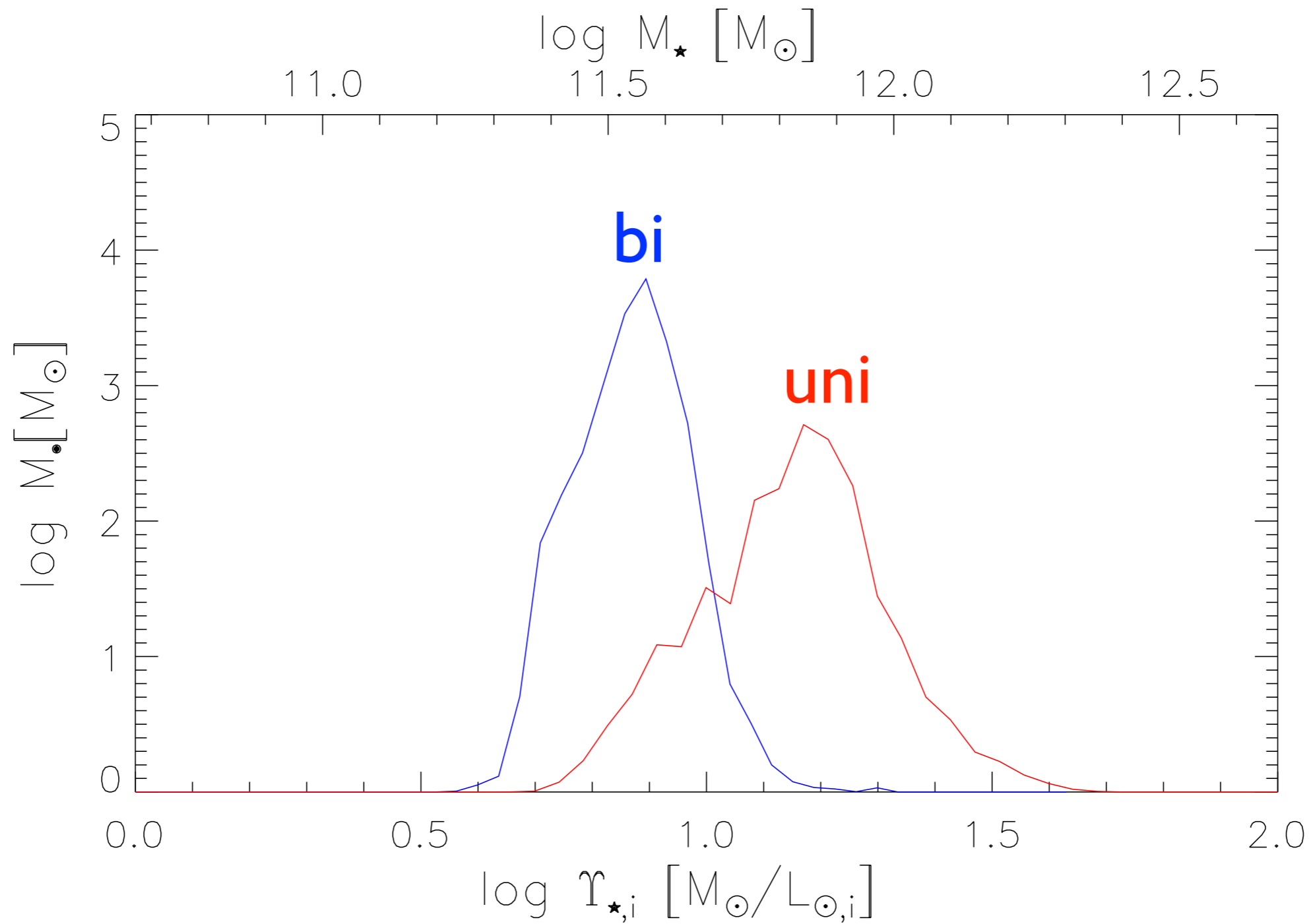
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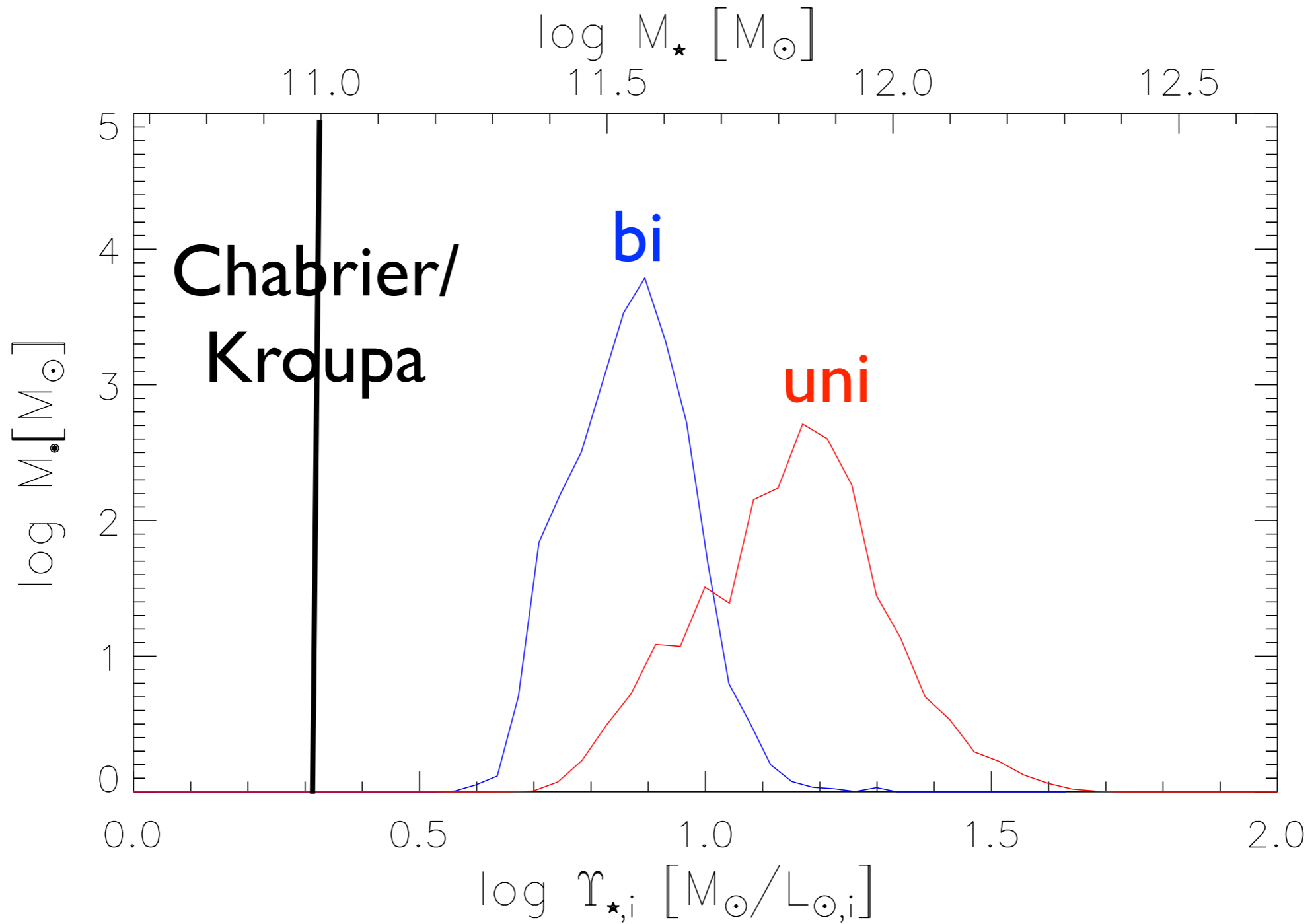
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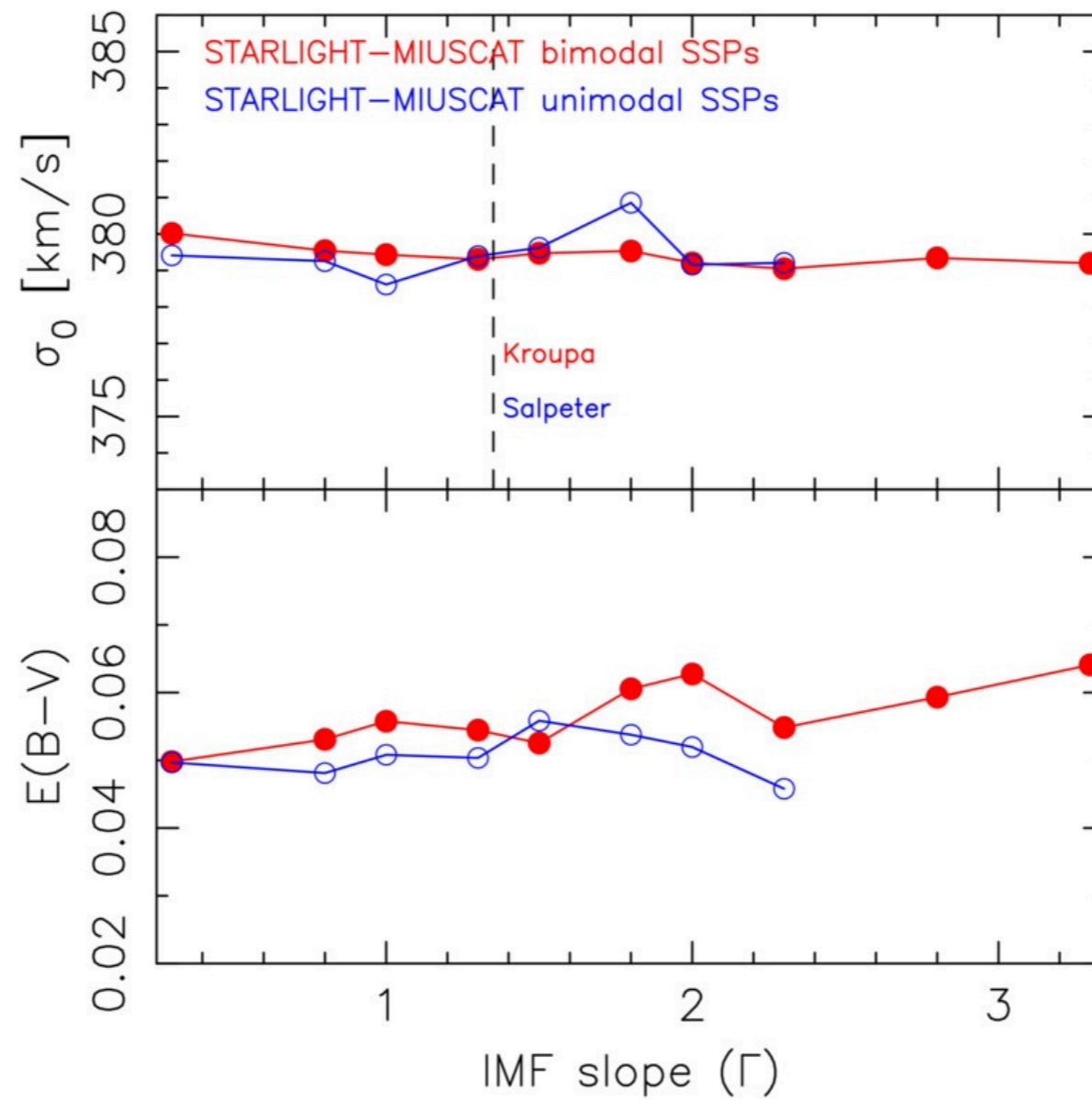
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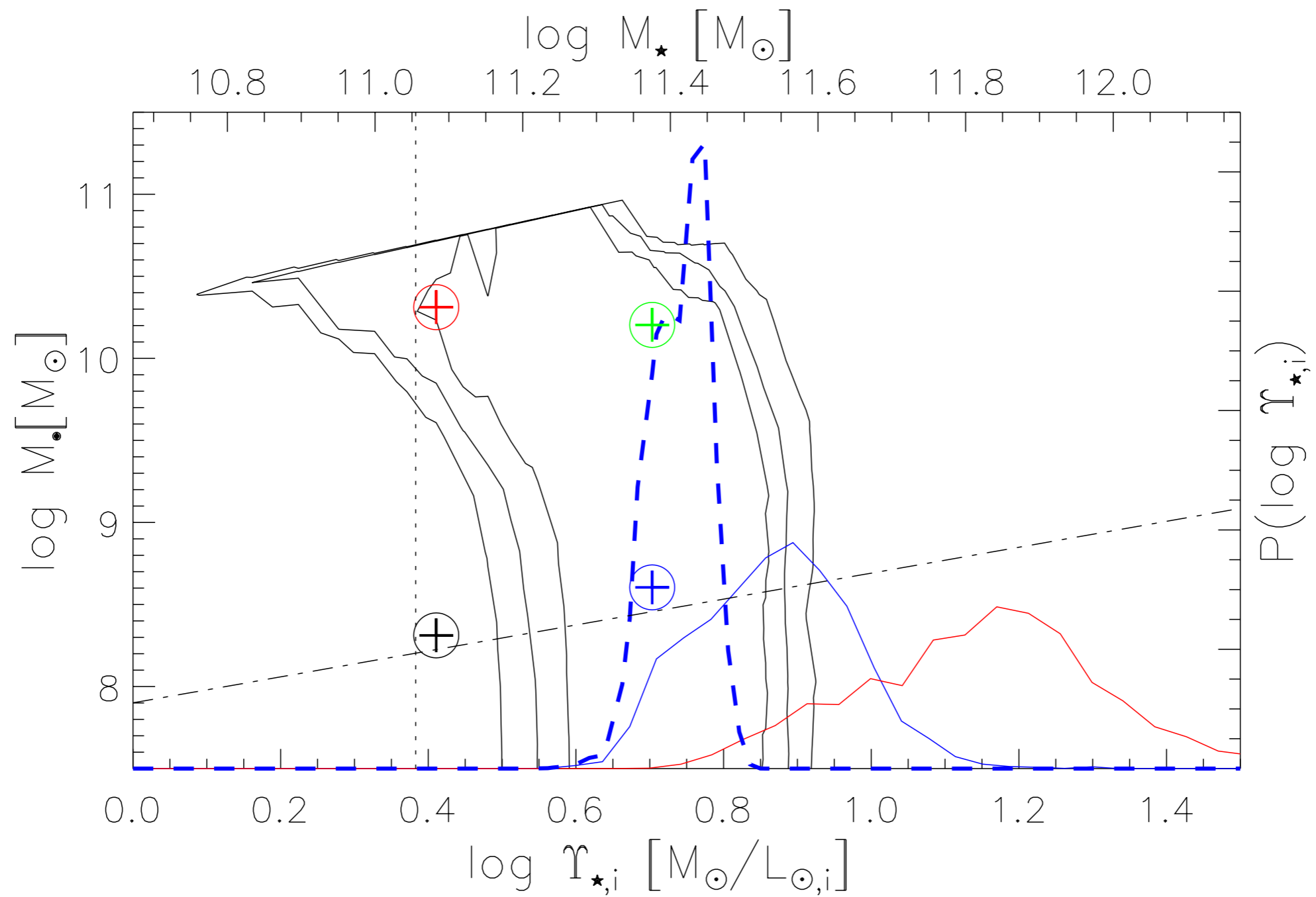
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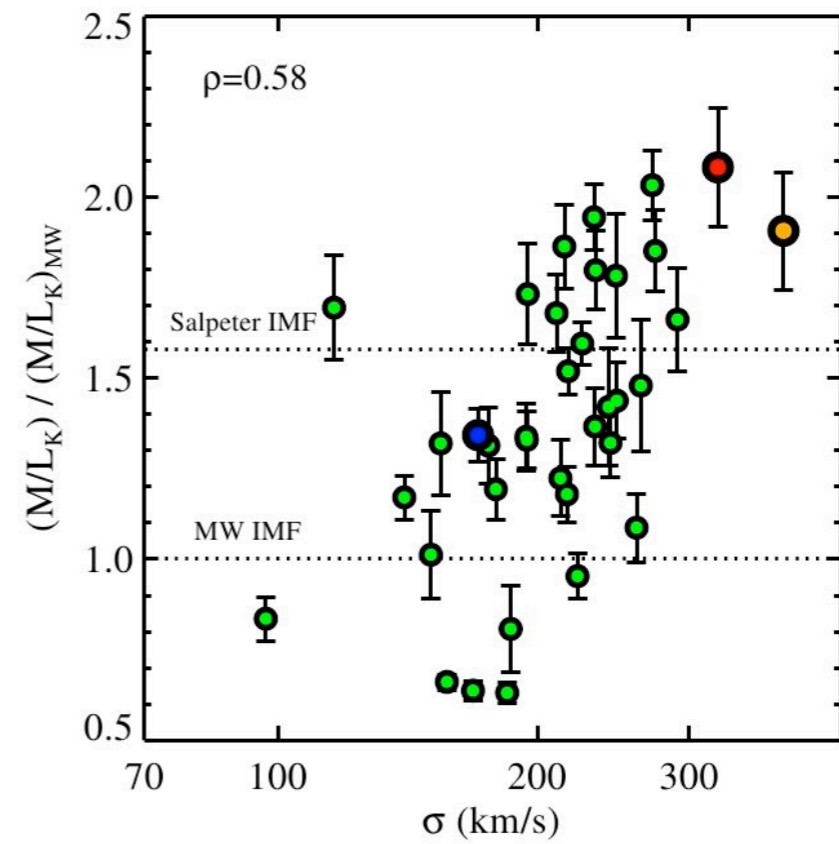
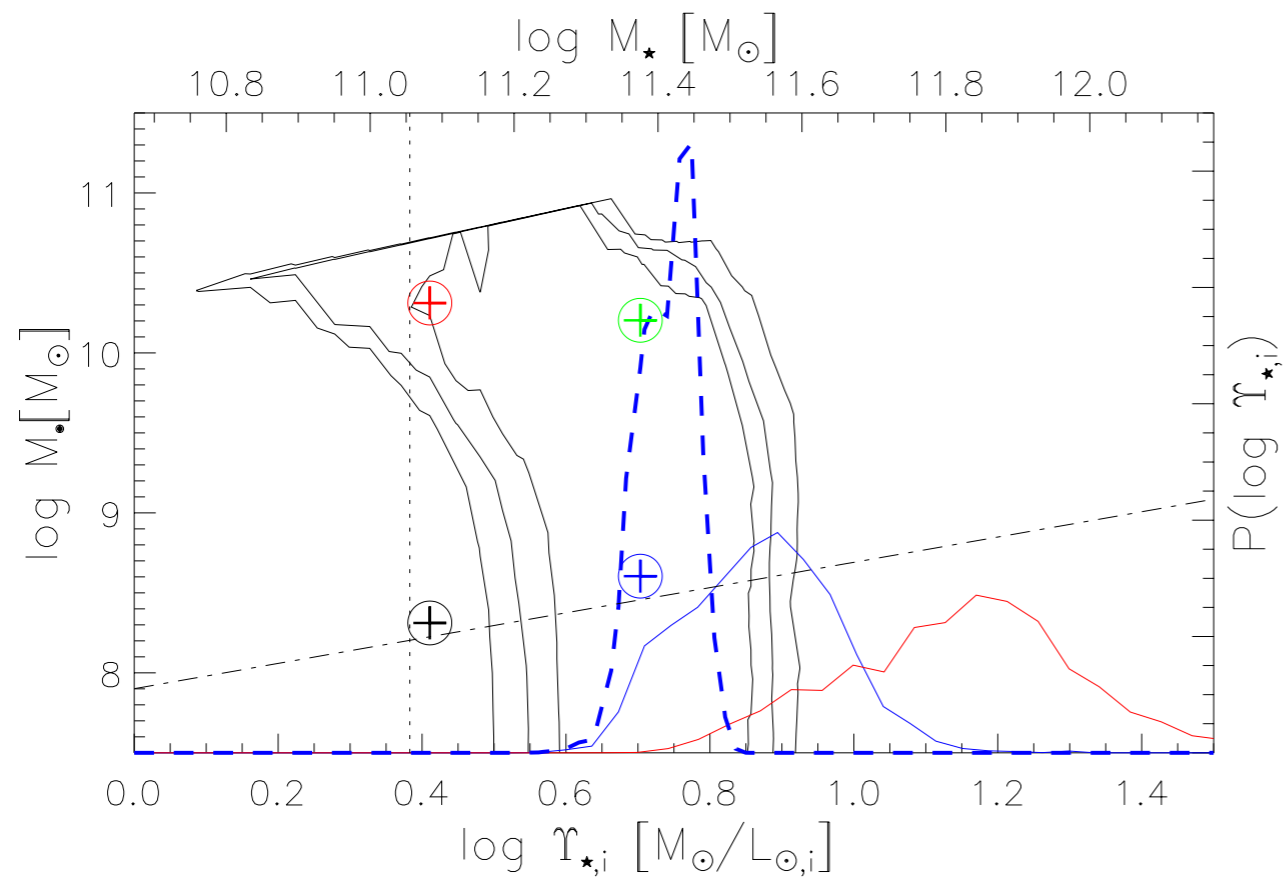
# Stellar Population Analysis: Hybrid method



# Combined Results



# Combined Results





# Discussion & Outlook

- connection to  $z \sim 1..3$  galaxies  
(e.g. vDokkum+08, vdWel+08,11) ?
- size growth (e.g. Trujillo+11) inside-out by dry  
minor merging (e.g. Hilz, Naab, Ostriker 2013)
- IMF reflects ISM conditions (high  $\alpha/Fe$   
and  $Z \rightarrow$  fast formation ?)
- HETMGs, NGC1277 et al.,
- Letter accepted, FORS2 data arrived