

**CANDELS :**  
**The progenitors of “*red nuggets*”**

astroph/1206.5000

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**+ CANDELS collaboration**

**Galaxy Workshop**  
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## Red nuggets:

Massive, compact,  
quiescent, galaxies at  $z \geq 2$



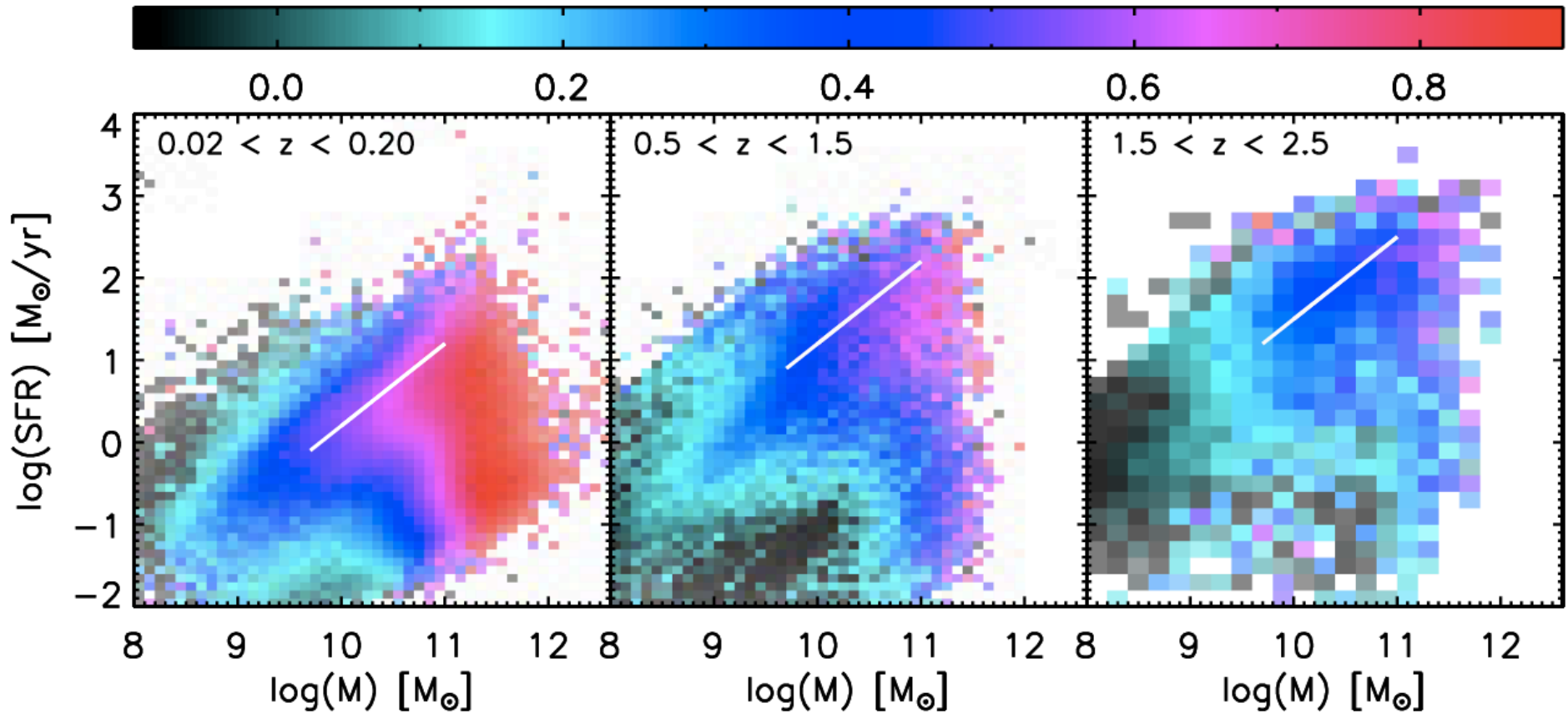
## What makes red nuggets so important ?

- ◆ Abundant population of quiescent galaxies at  $z \approx 2$   
(Universe 2–3 Gyr old) (Arnouts+07; Brammer+09,11; Williams+09; Ilbert+10; Whitaker+11)
- ◆ Remarkably (x5) small compared to local analogs of the same stellar mass (Trujillo+07; Buitrago+08; Cassata+10; Saracco+10,11; Newman+12)

# The SFR-M plane

median  $\log(r_e)$  [kpc]

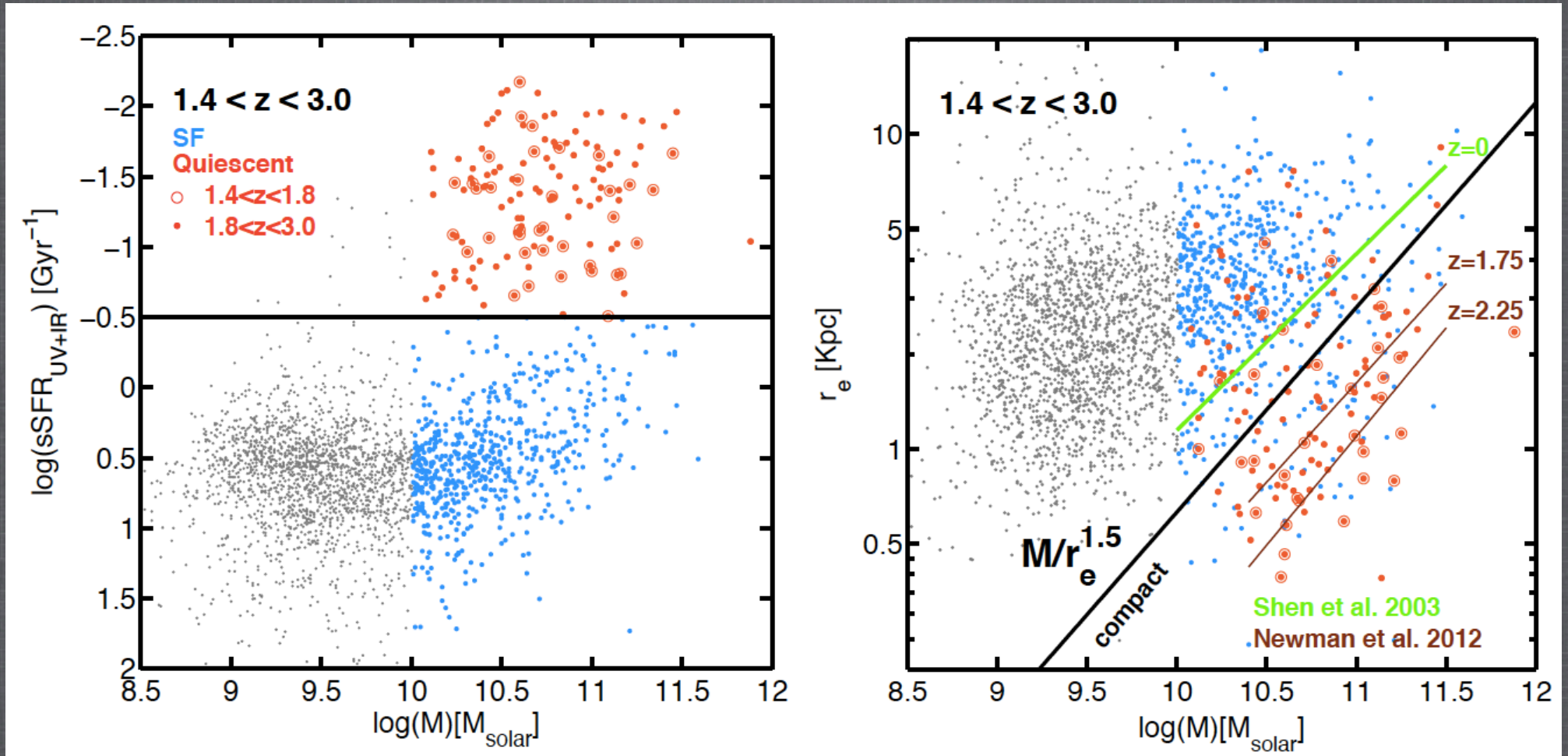
Wuyts et al. 2011



$$\text{SFR} \approx M^\alpha$$

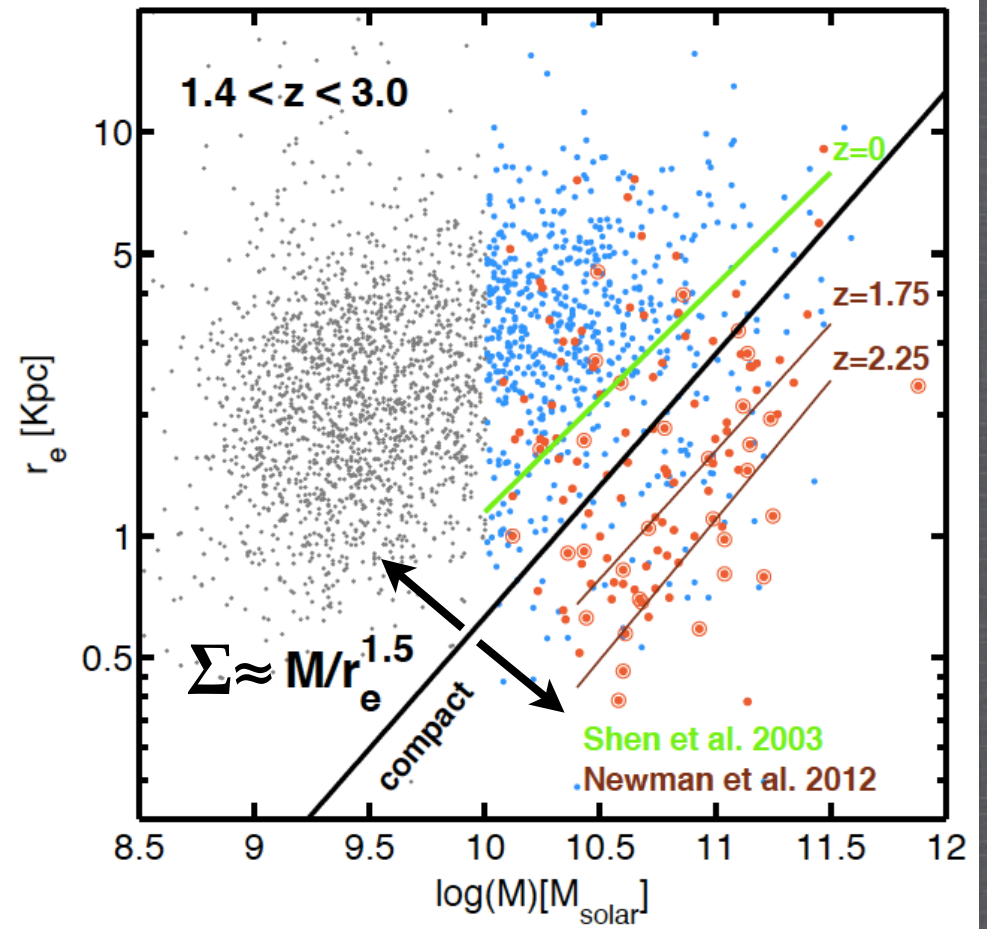
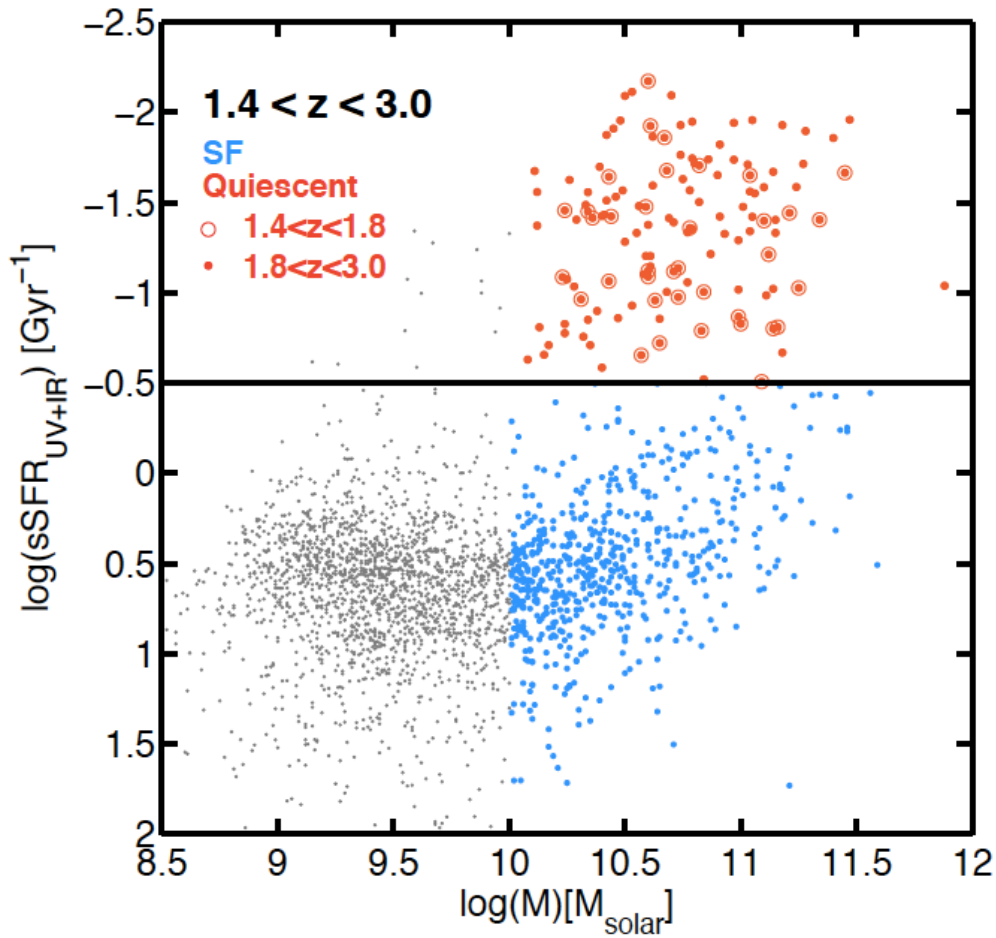
- SFGs are bigger at a given mass

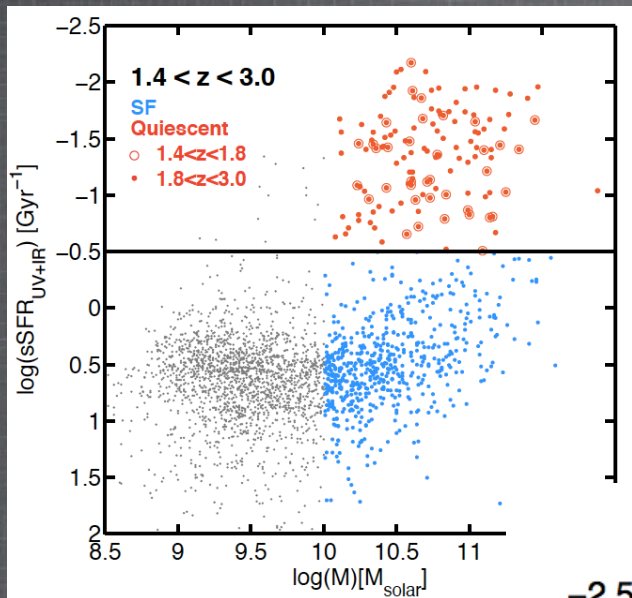
# sSFR-M and Mass-Size



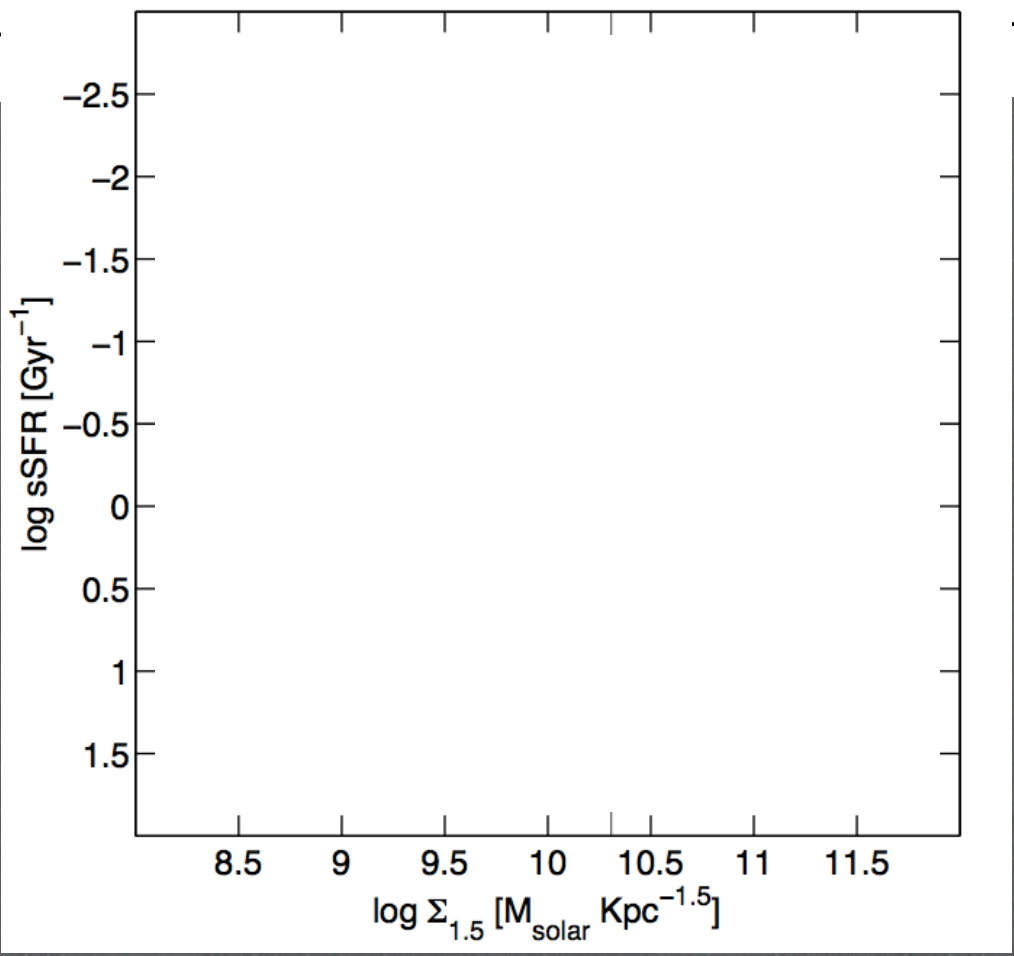
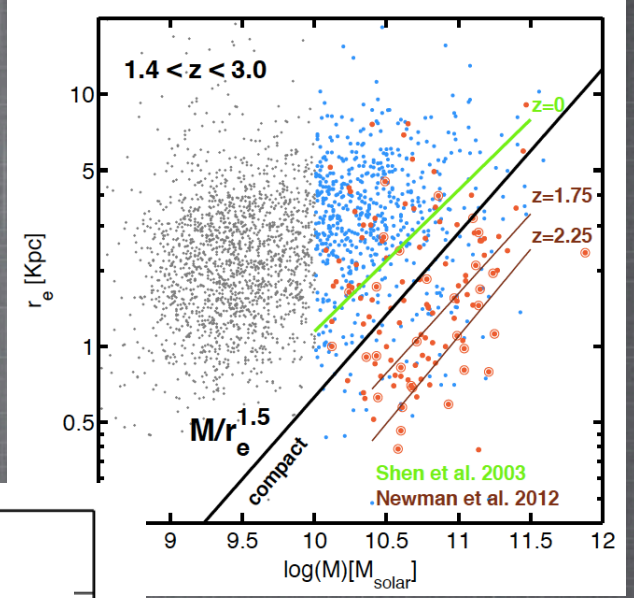
- CANDELS H-band selected catalog in GOODS-S & UDS
- Photo-z's (spec-z), stellar masses, (UV+IR) SFRs, GALFIT morphologies

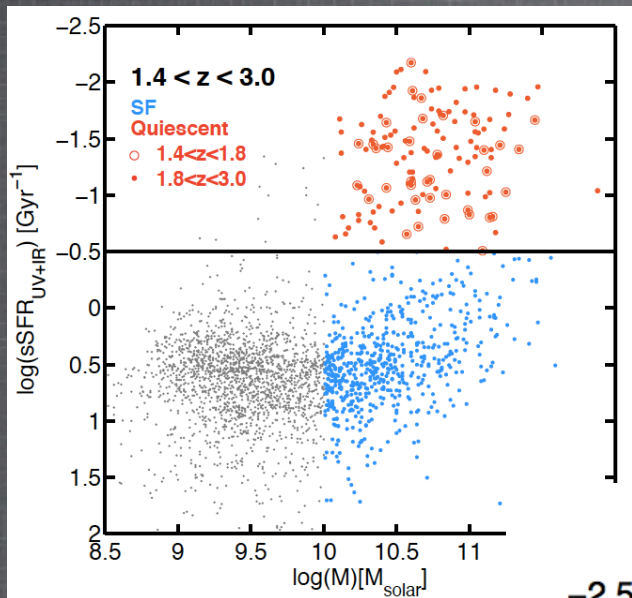
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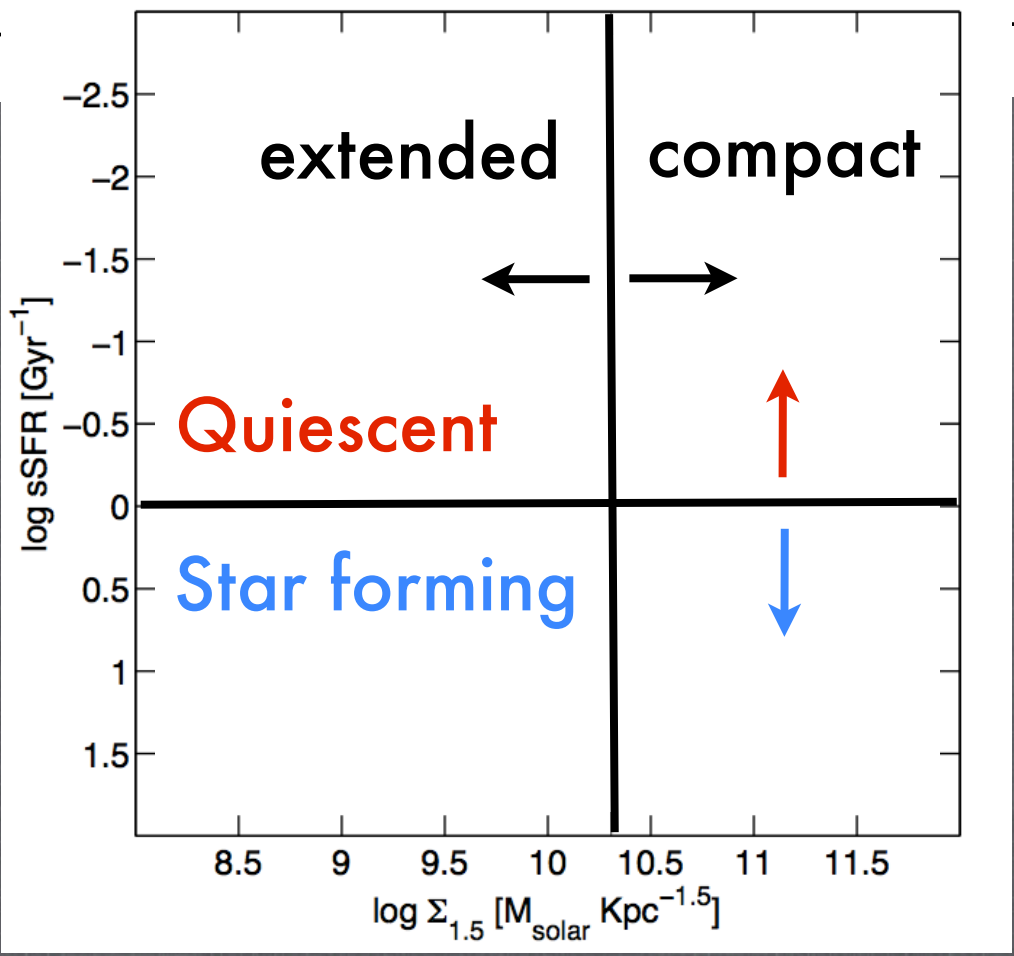
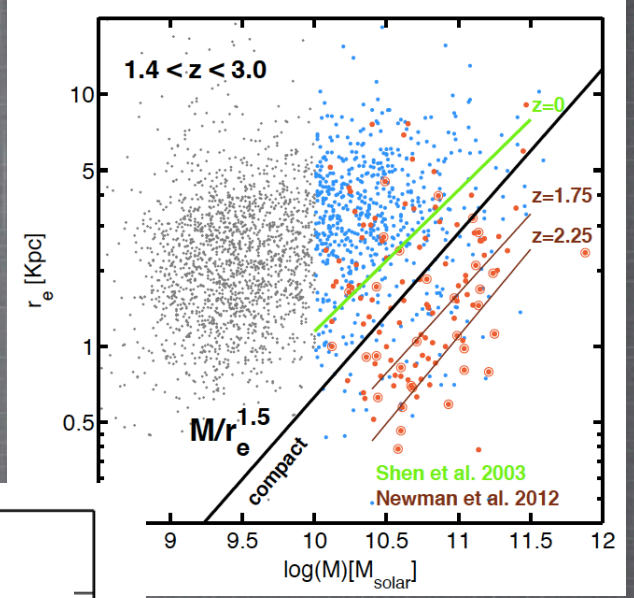


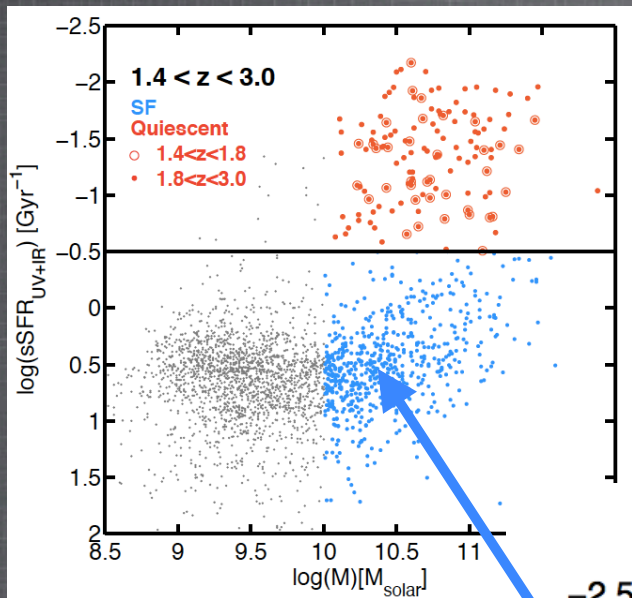
**$1.4 < z < 3.0$**



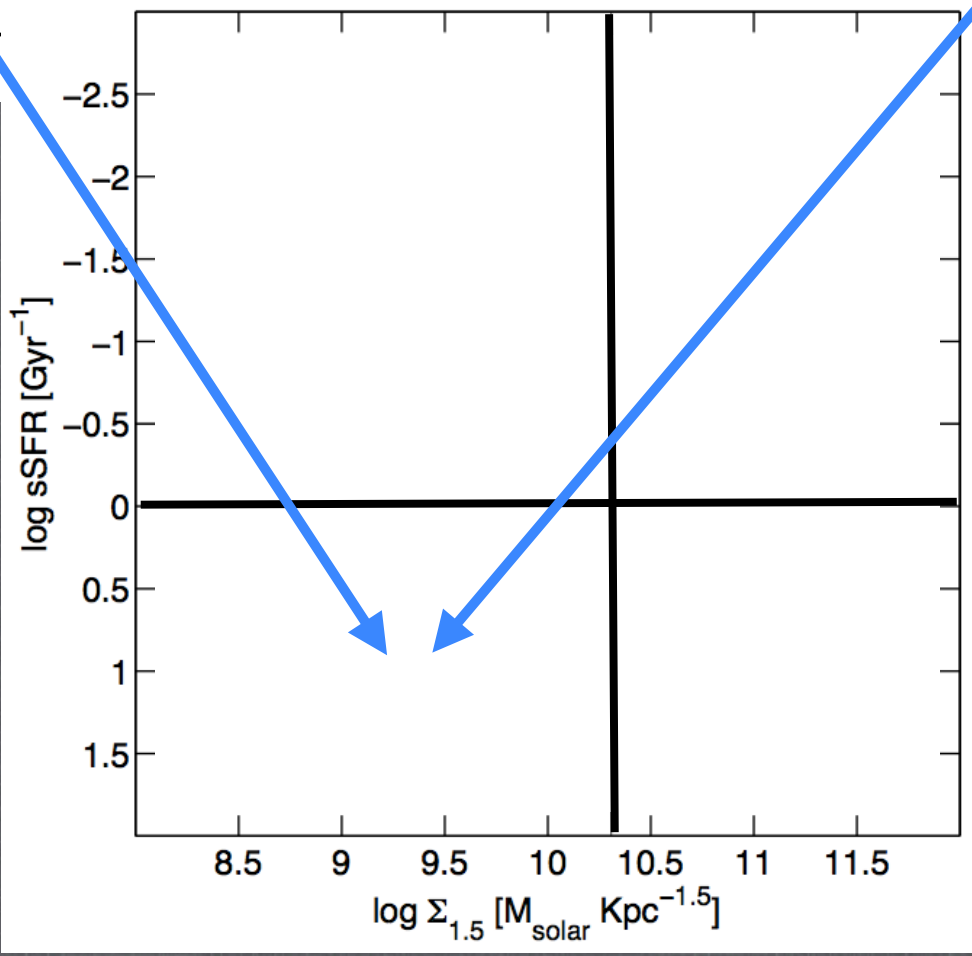
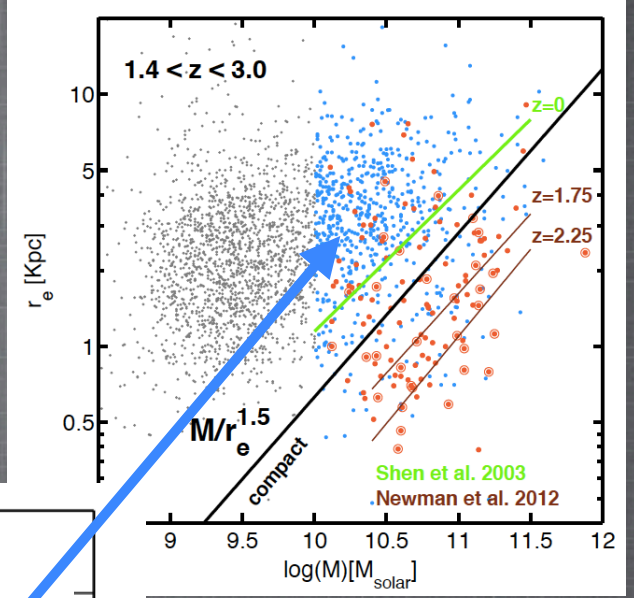


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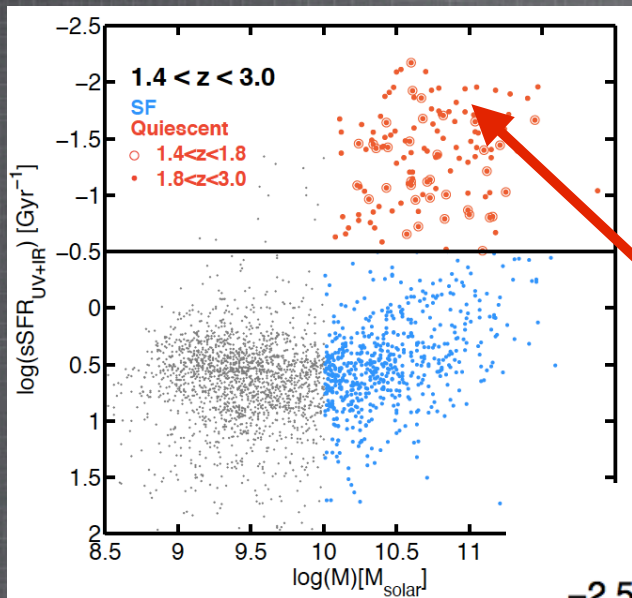




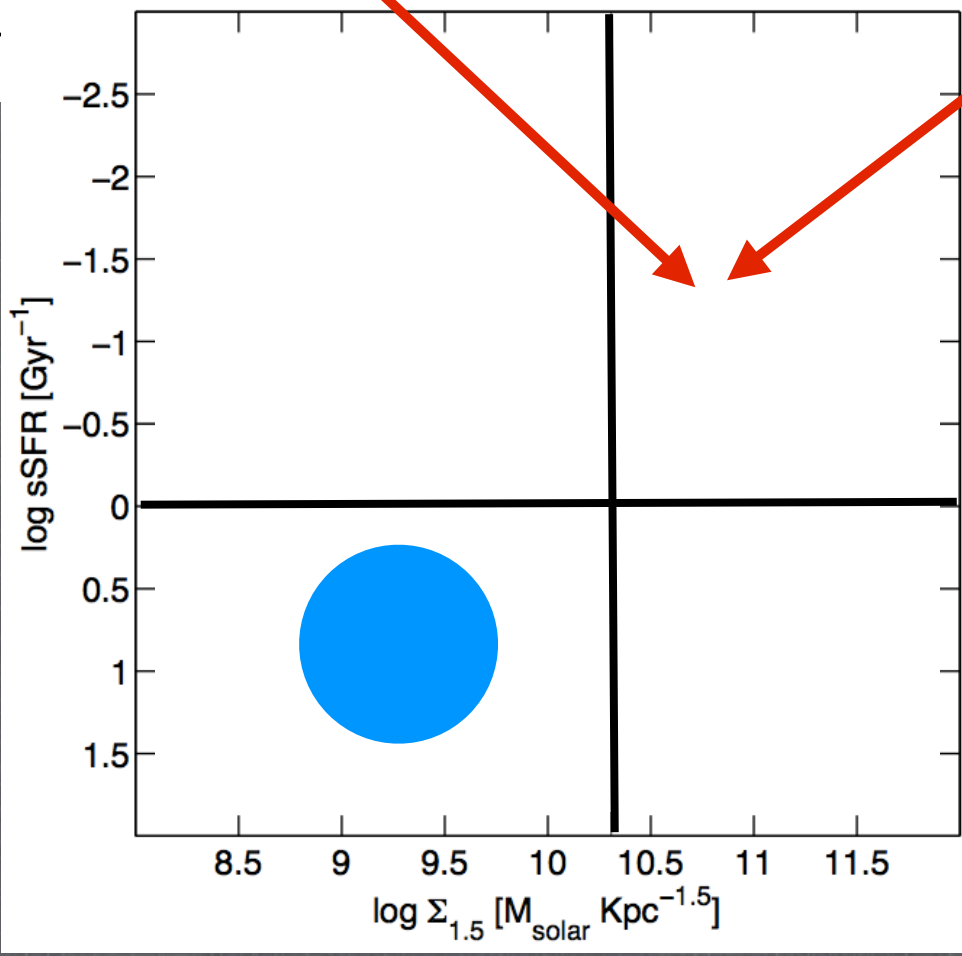
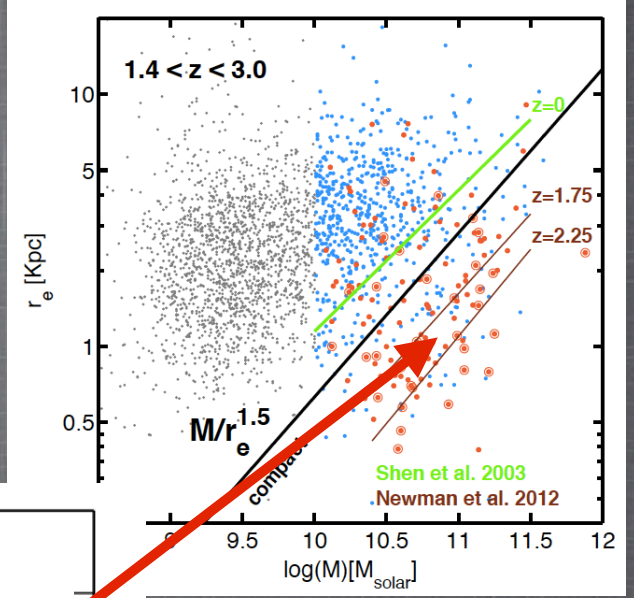
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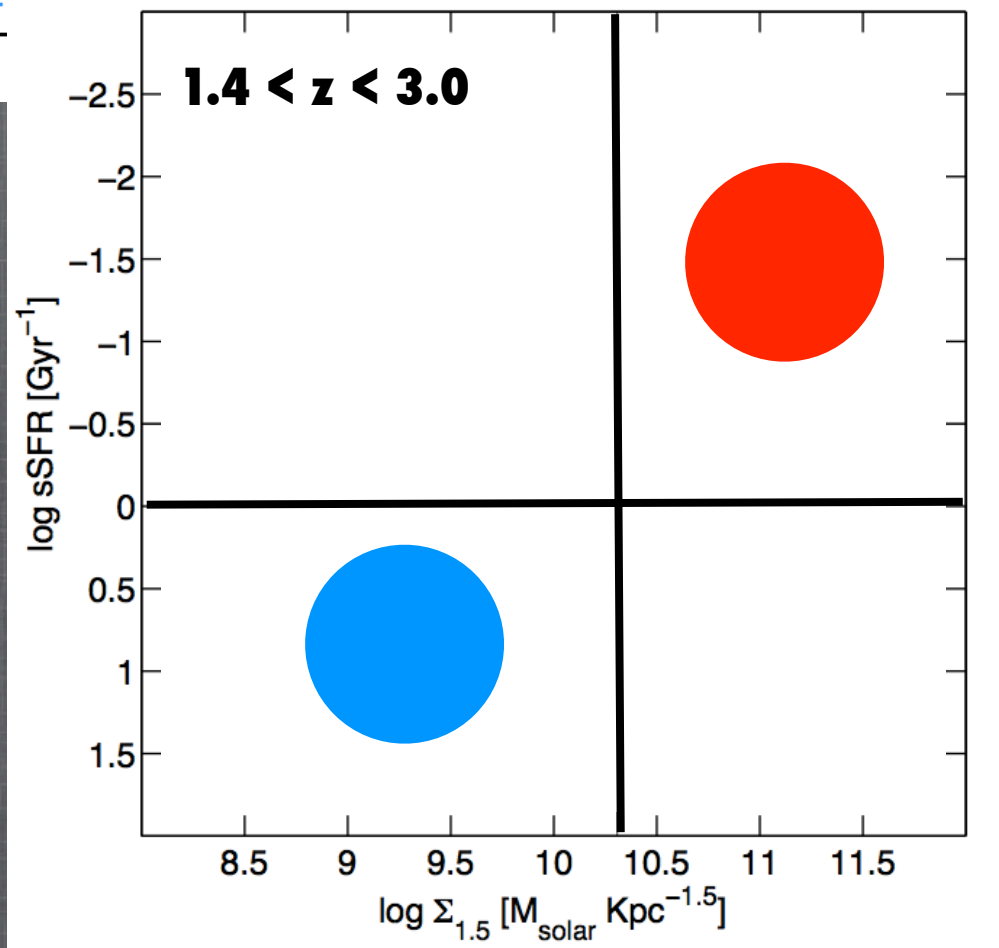
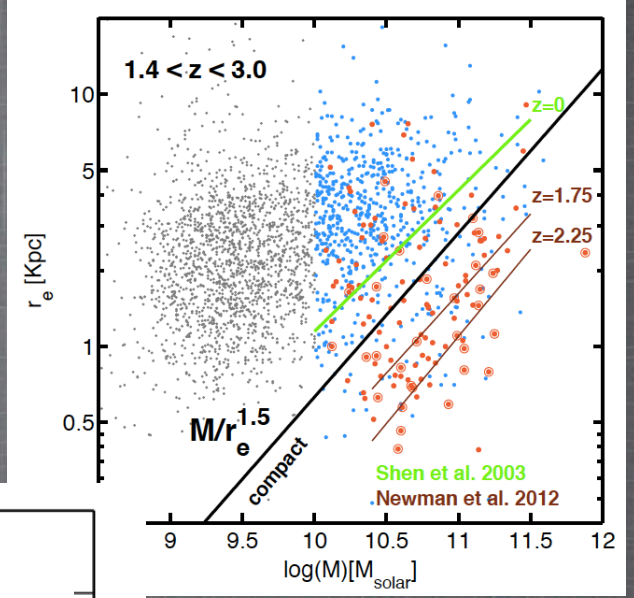
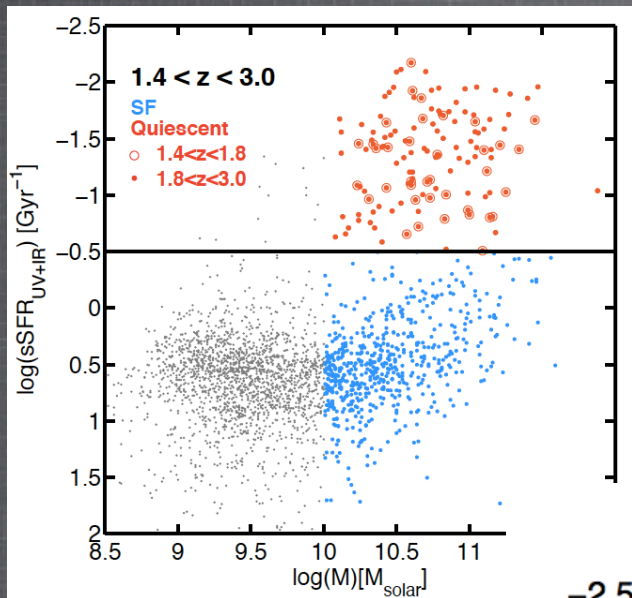


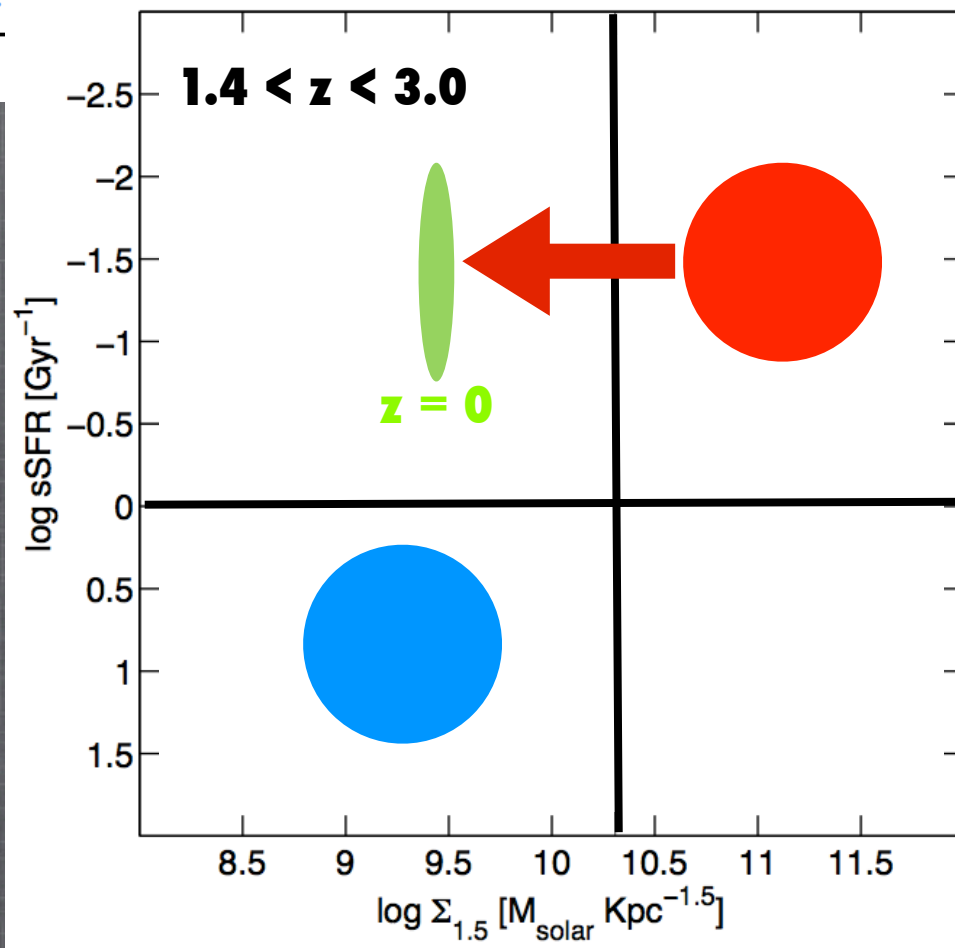
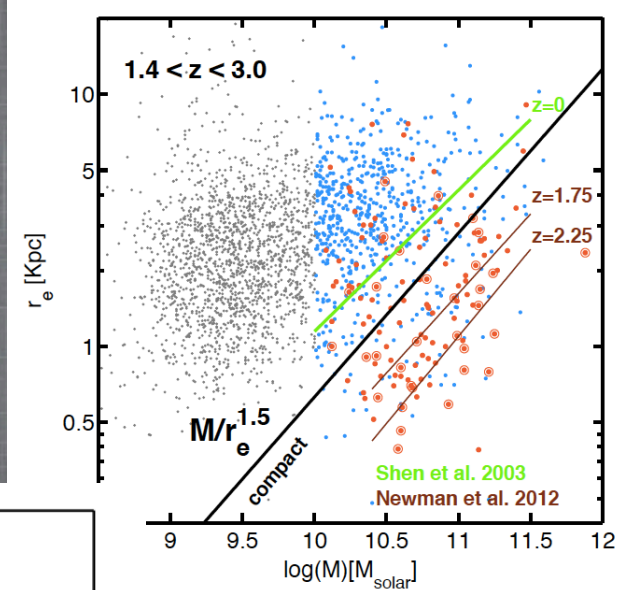
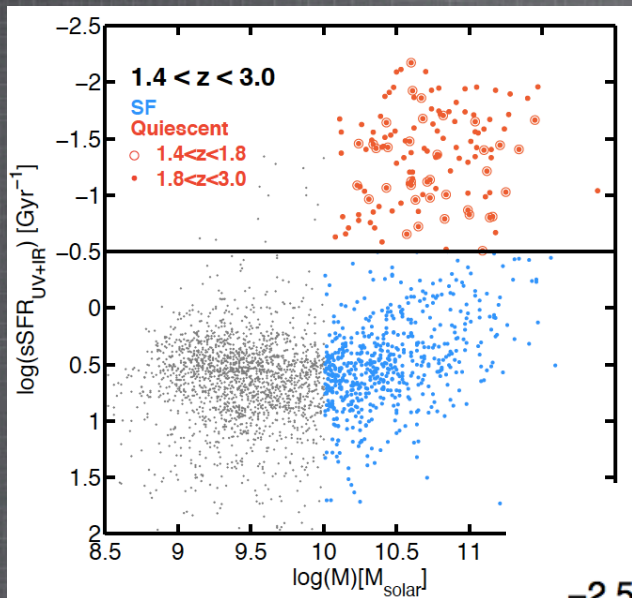


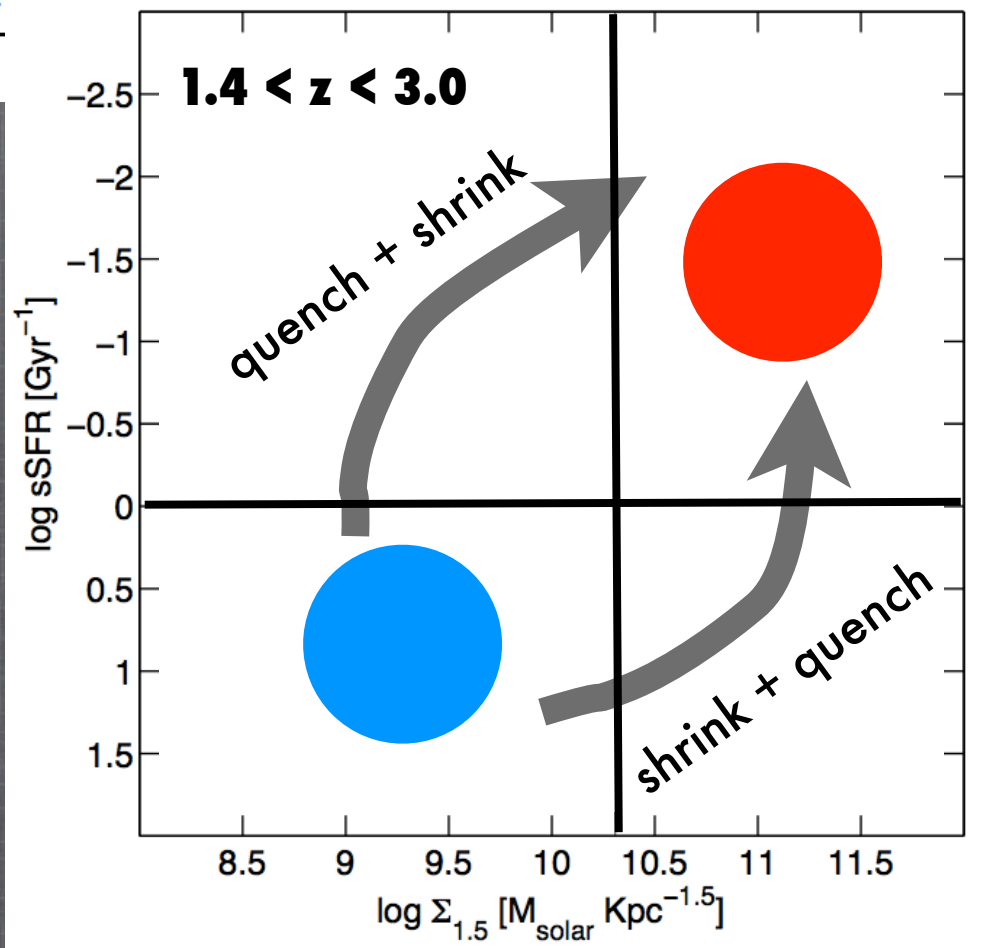
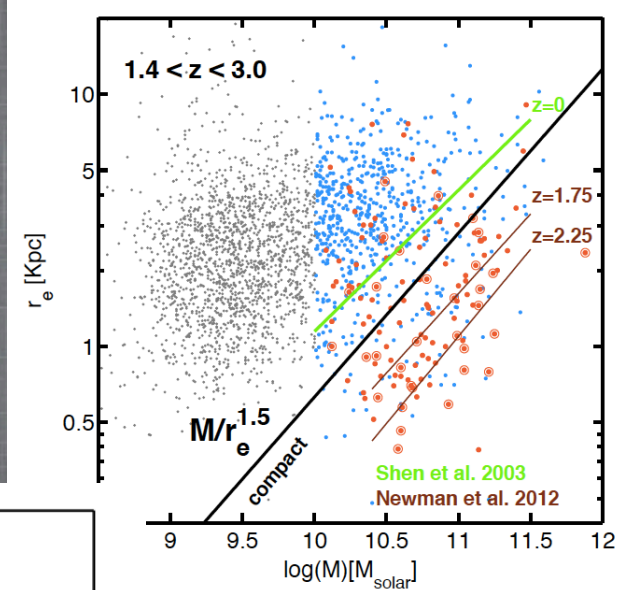
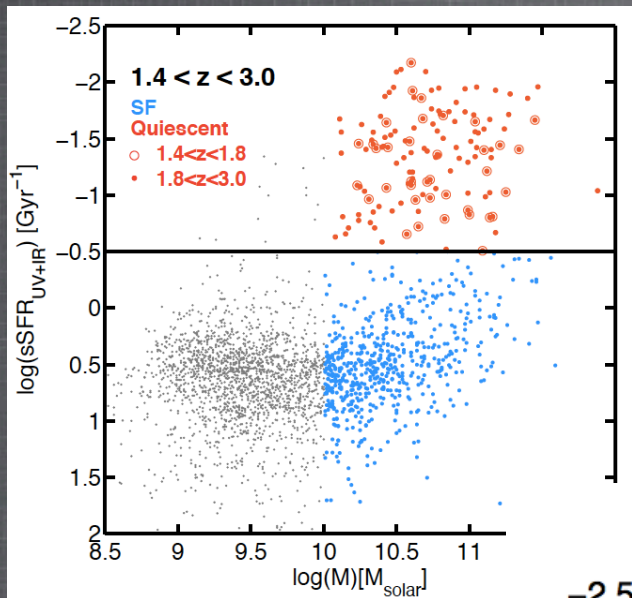


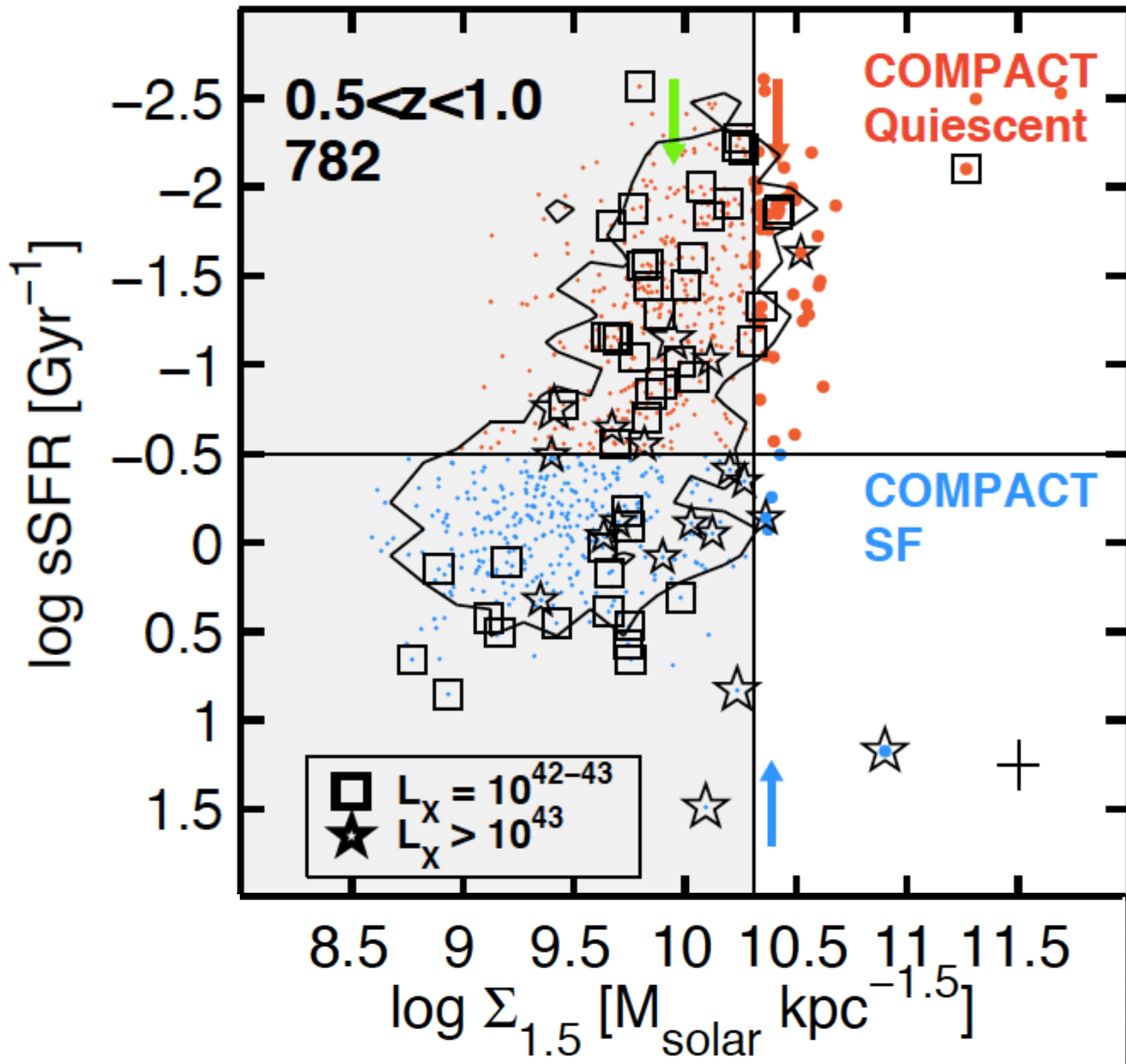
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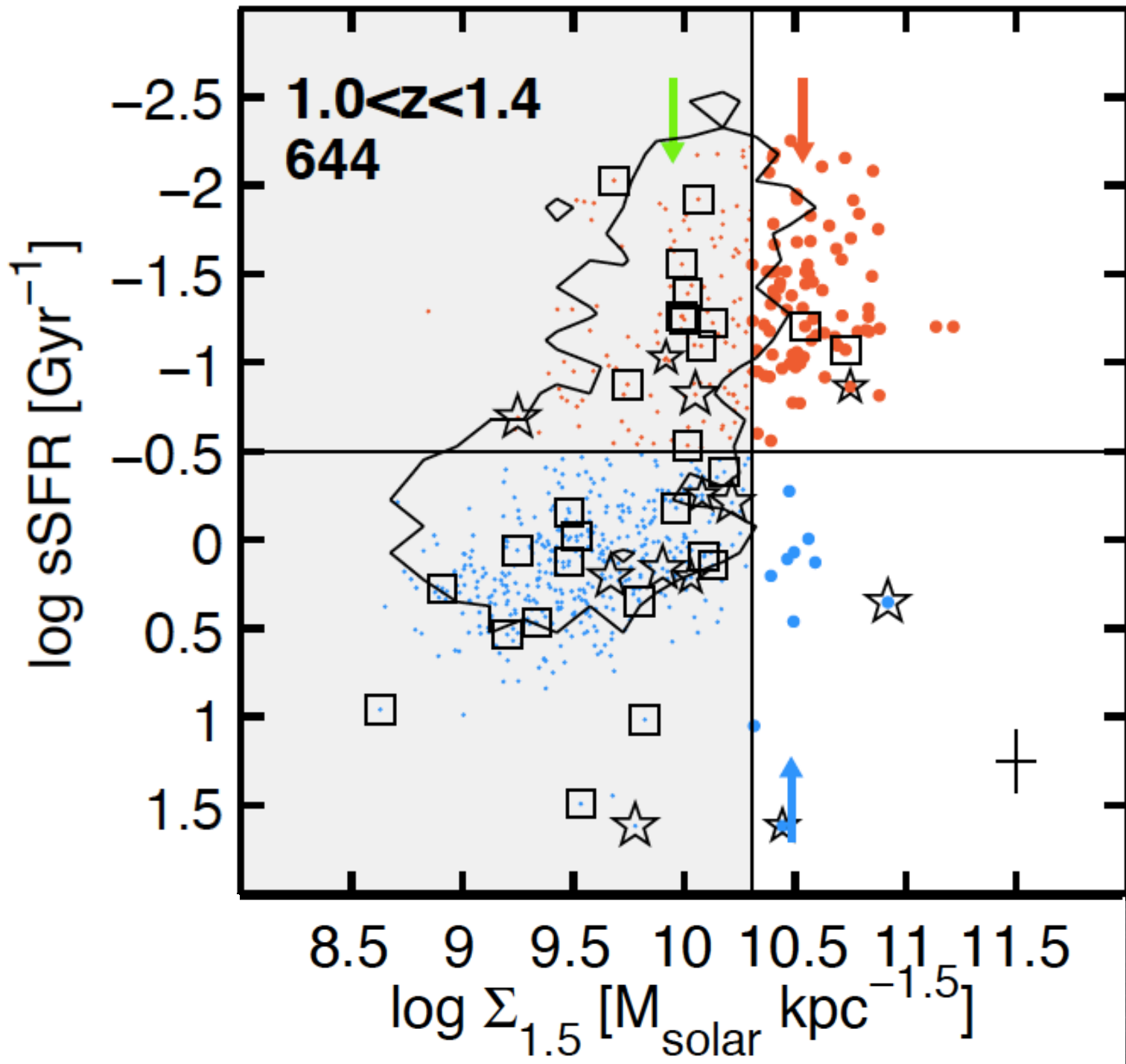


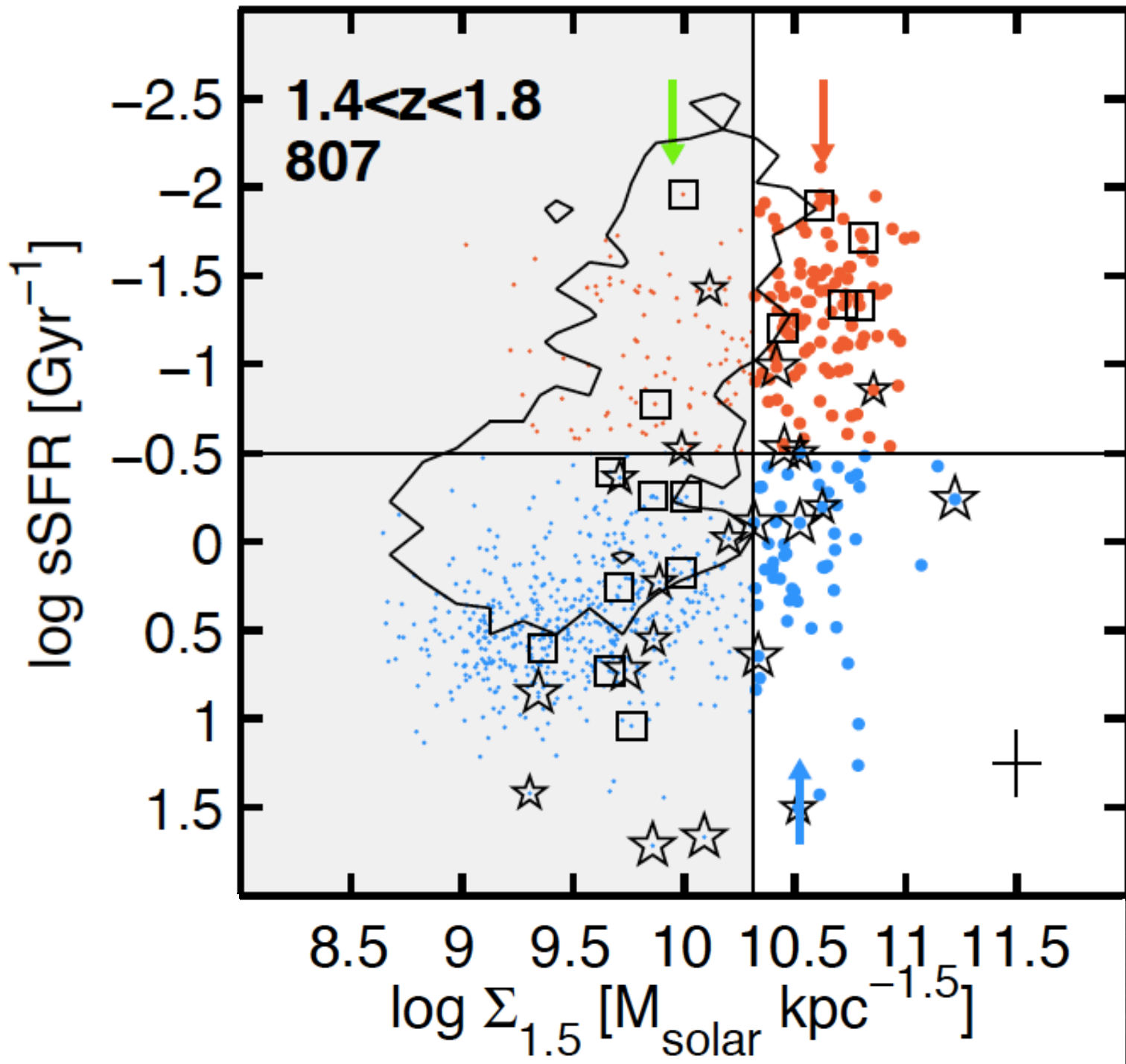


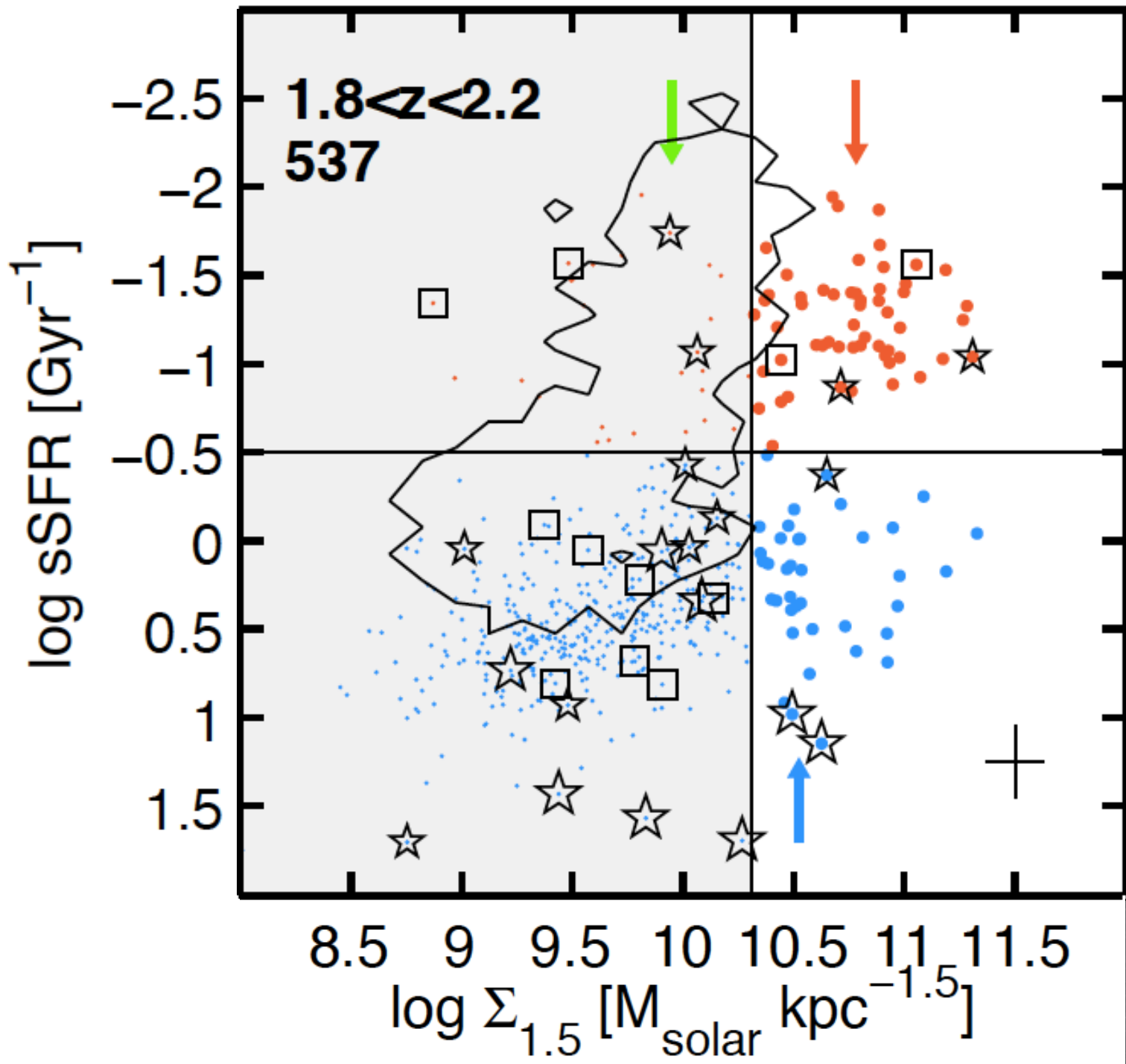




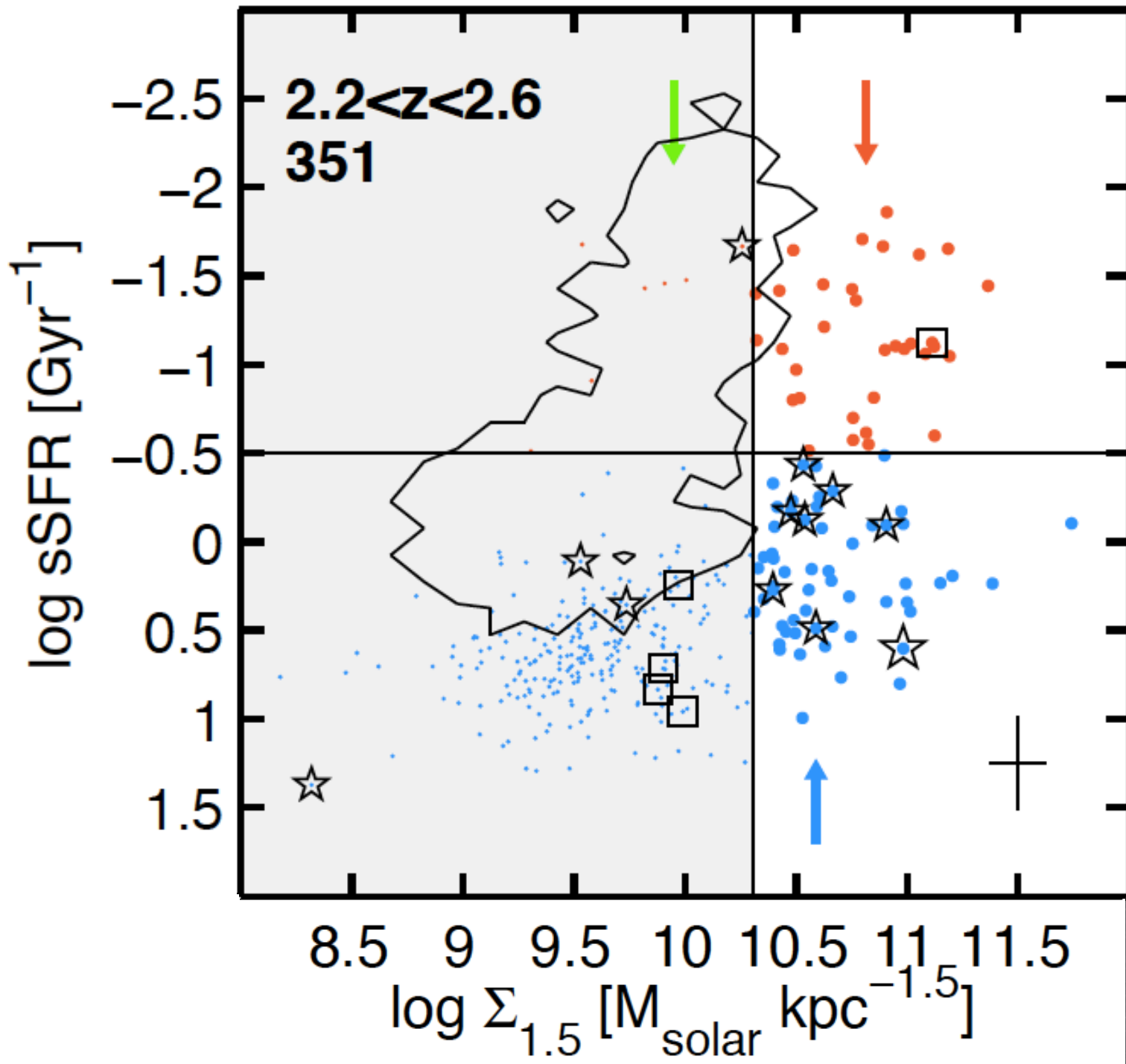


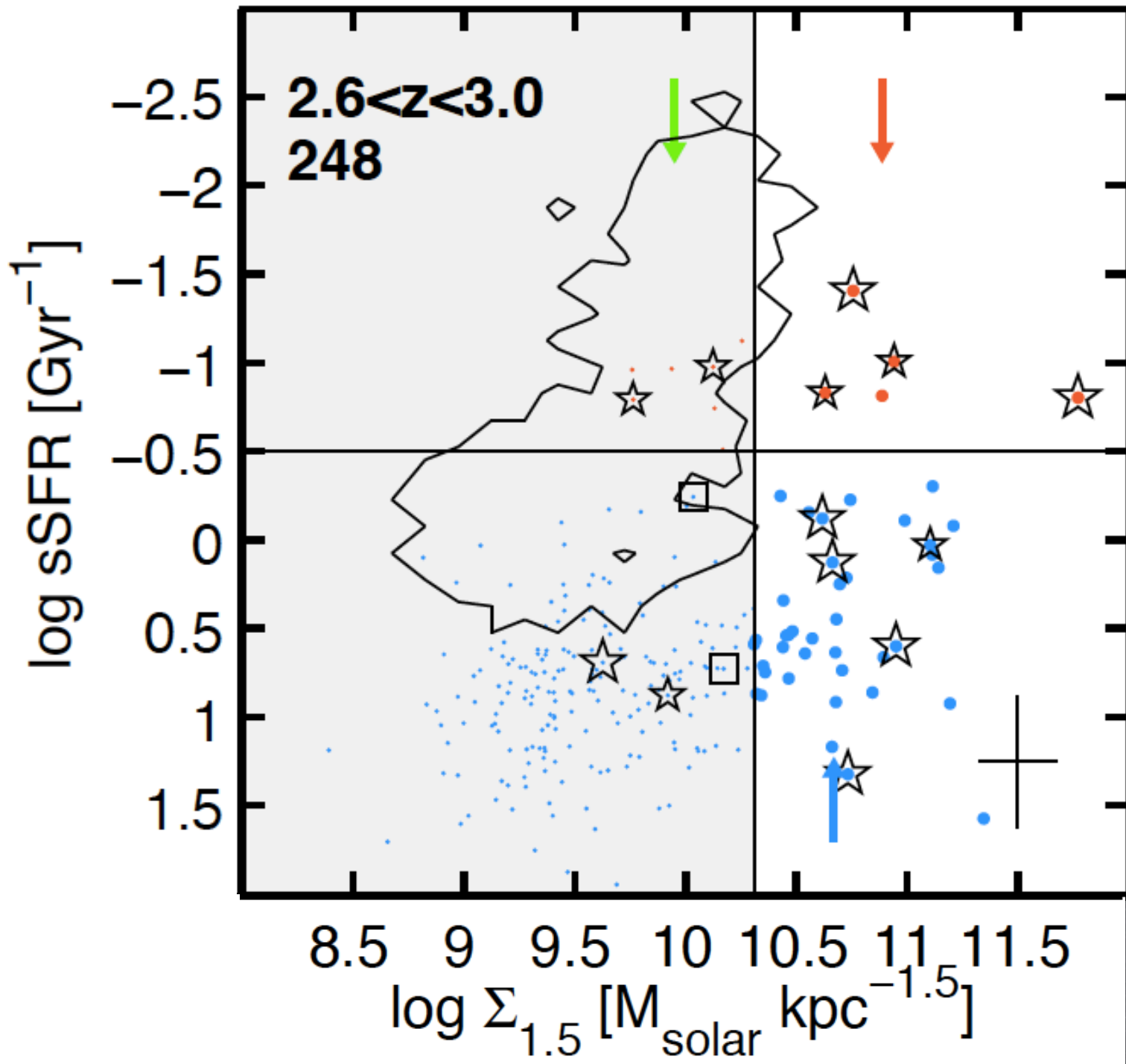




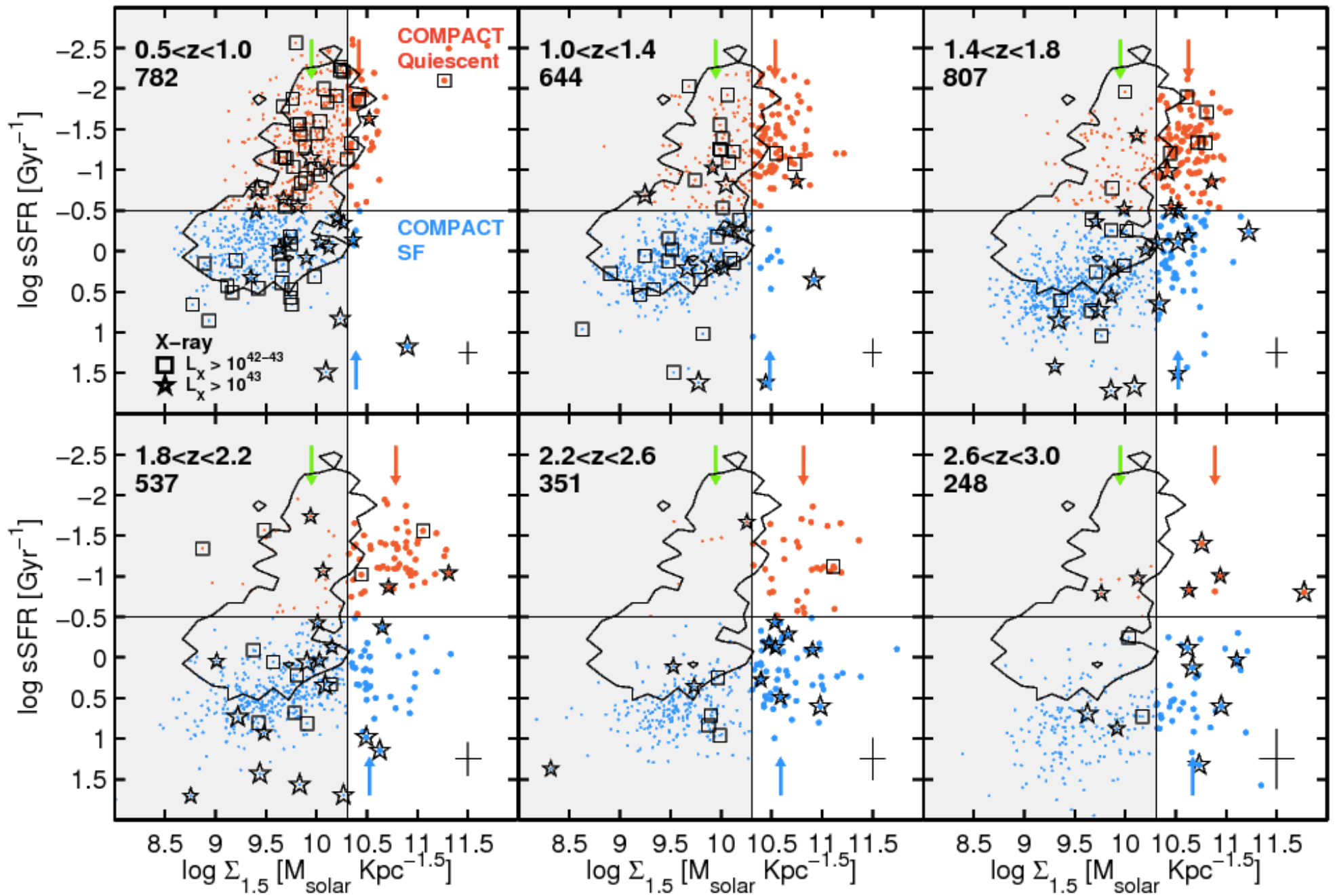




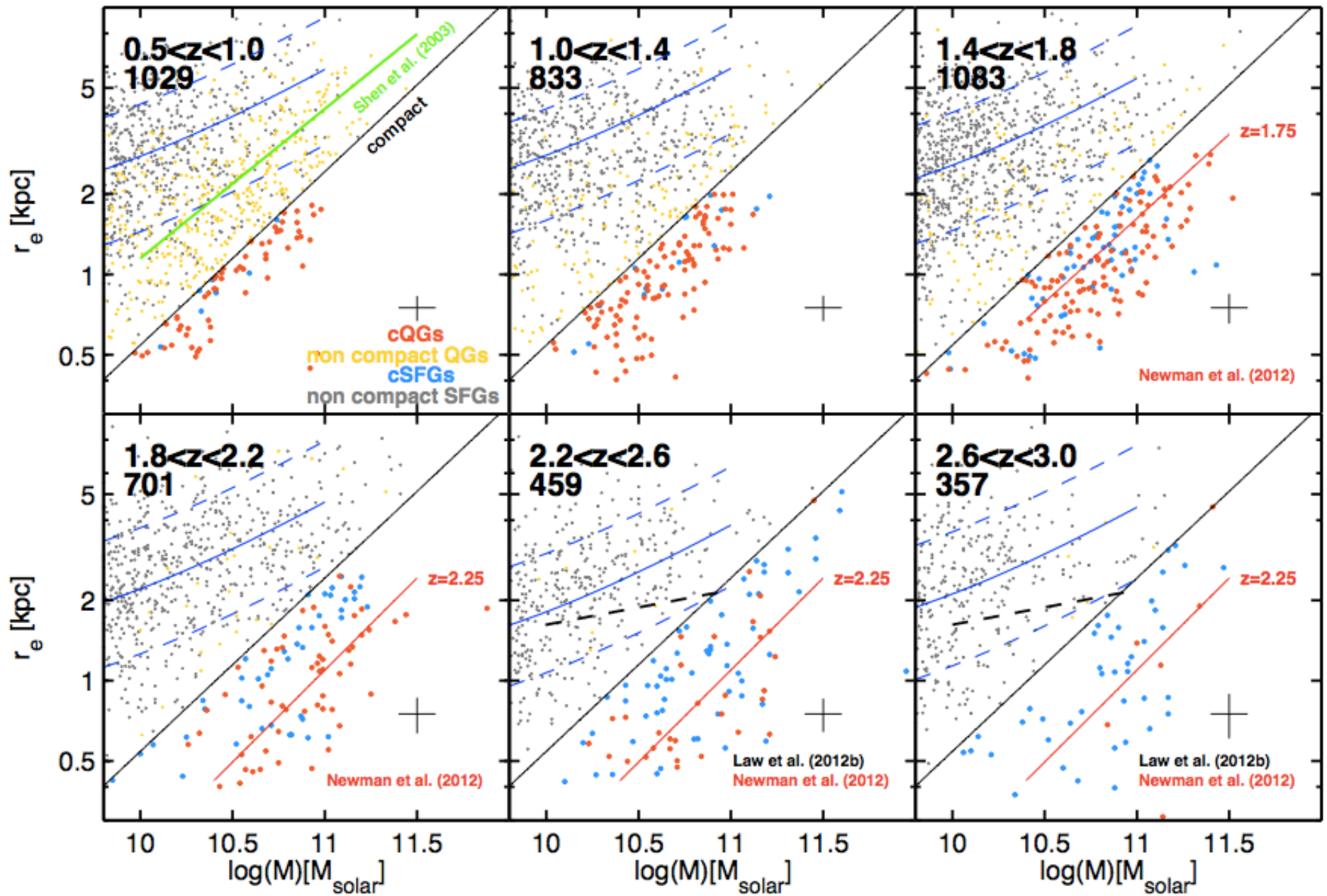




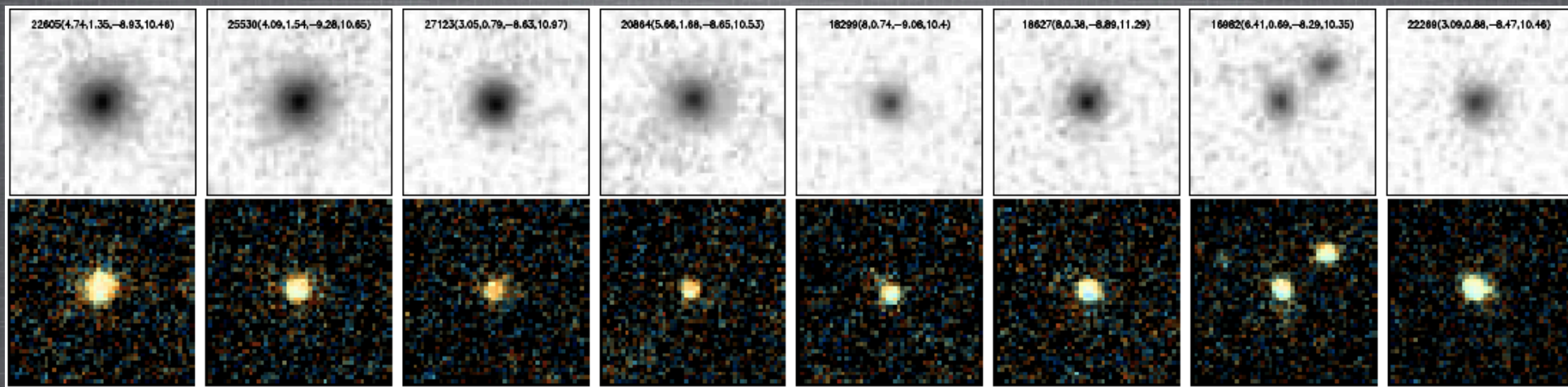
# Compact quiescent and SFGs



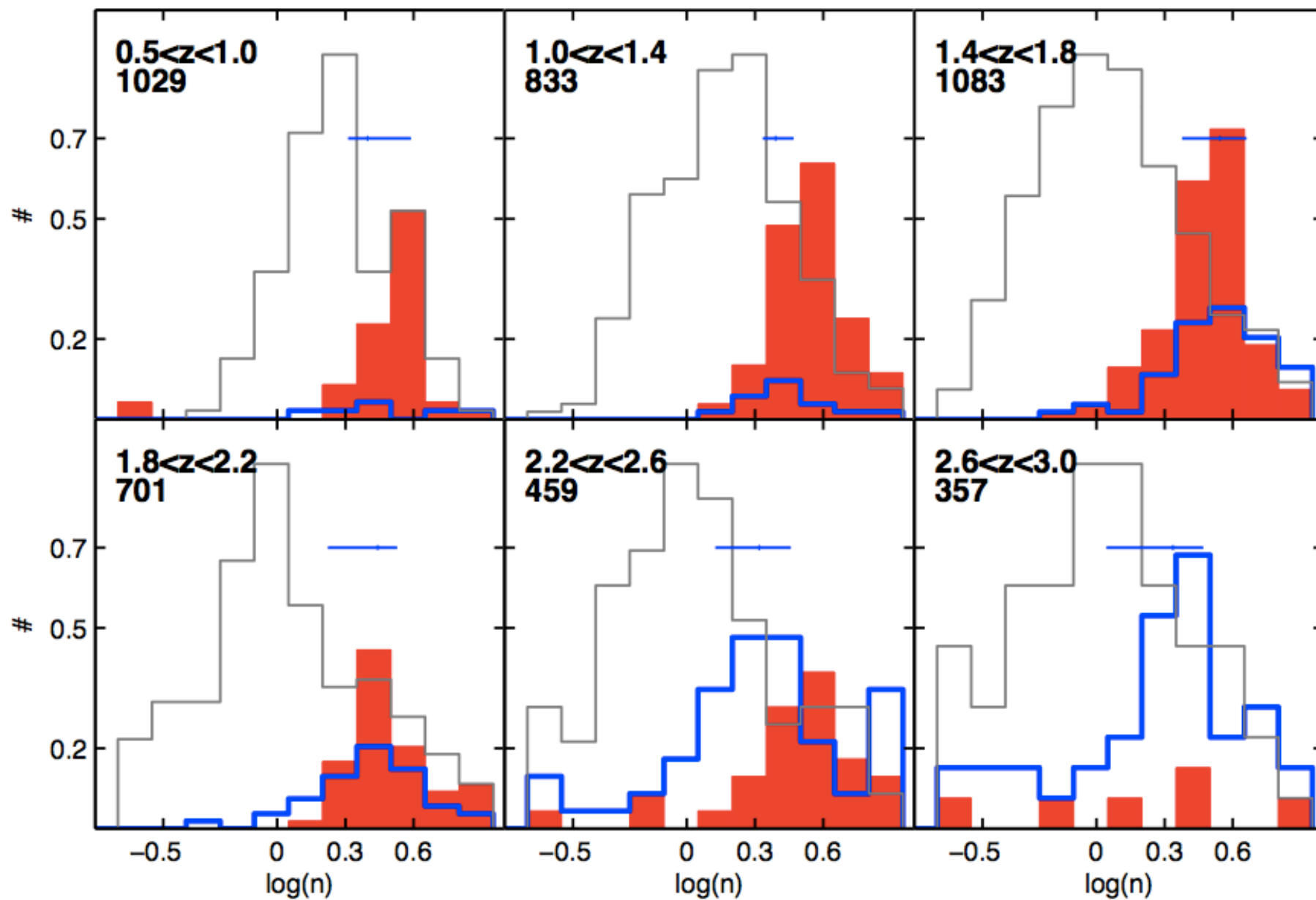
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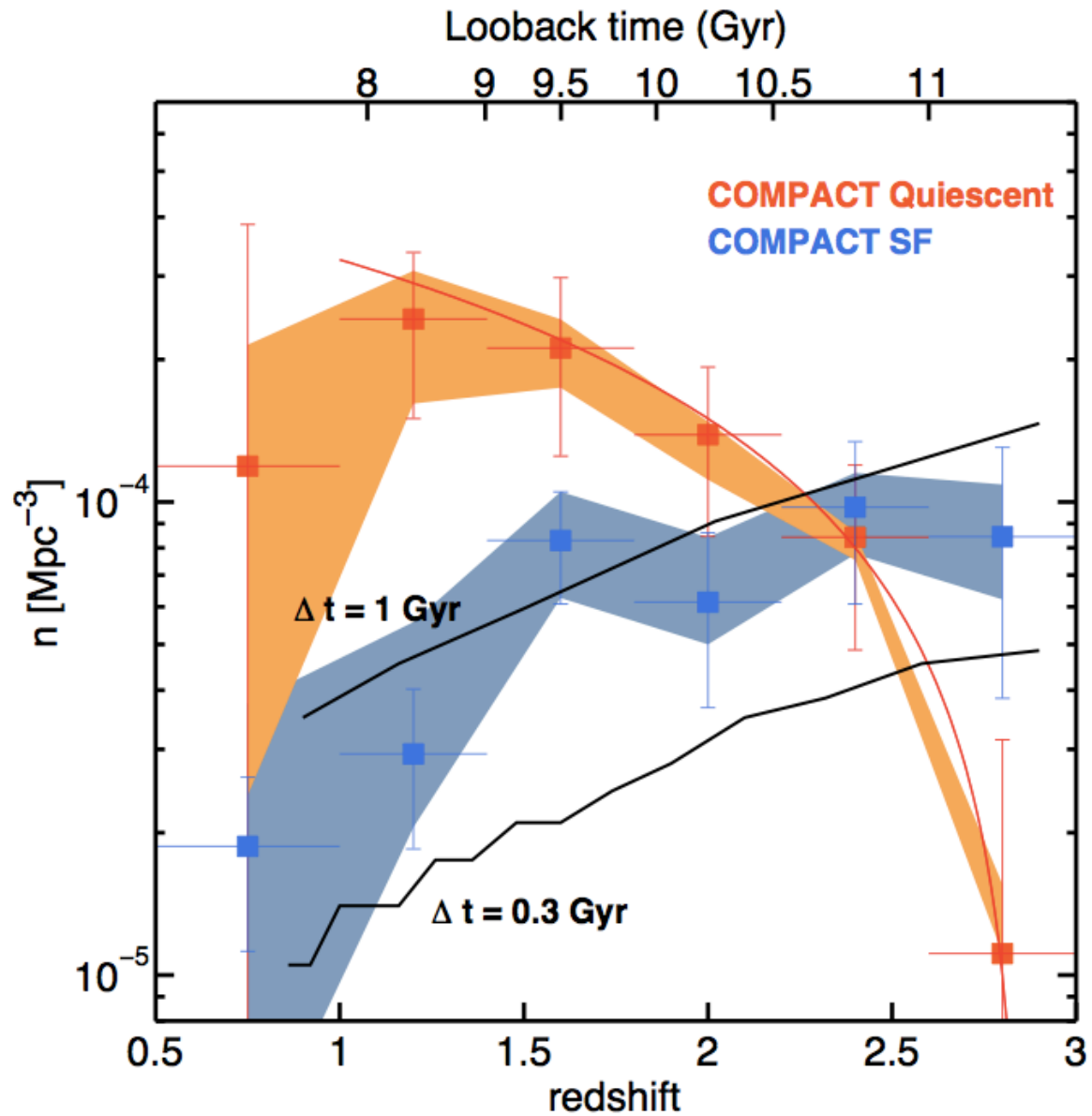
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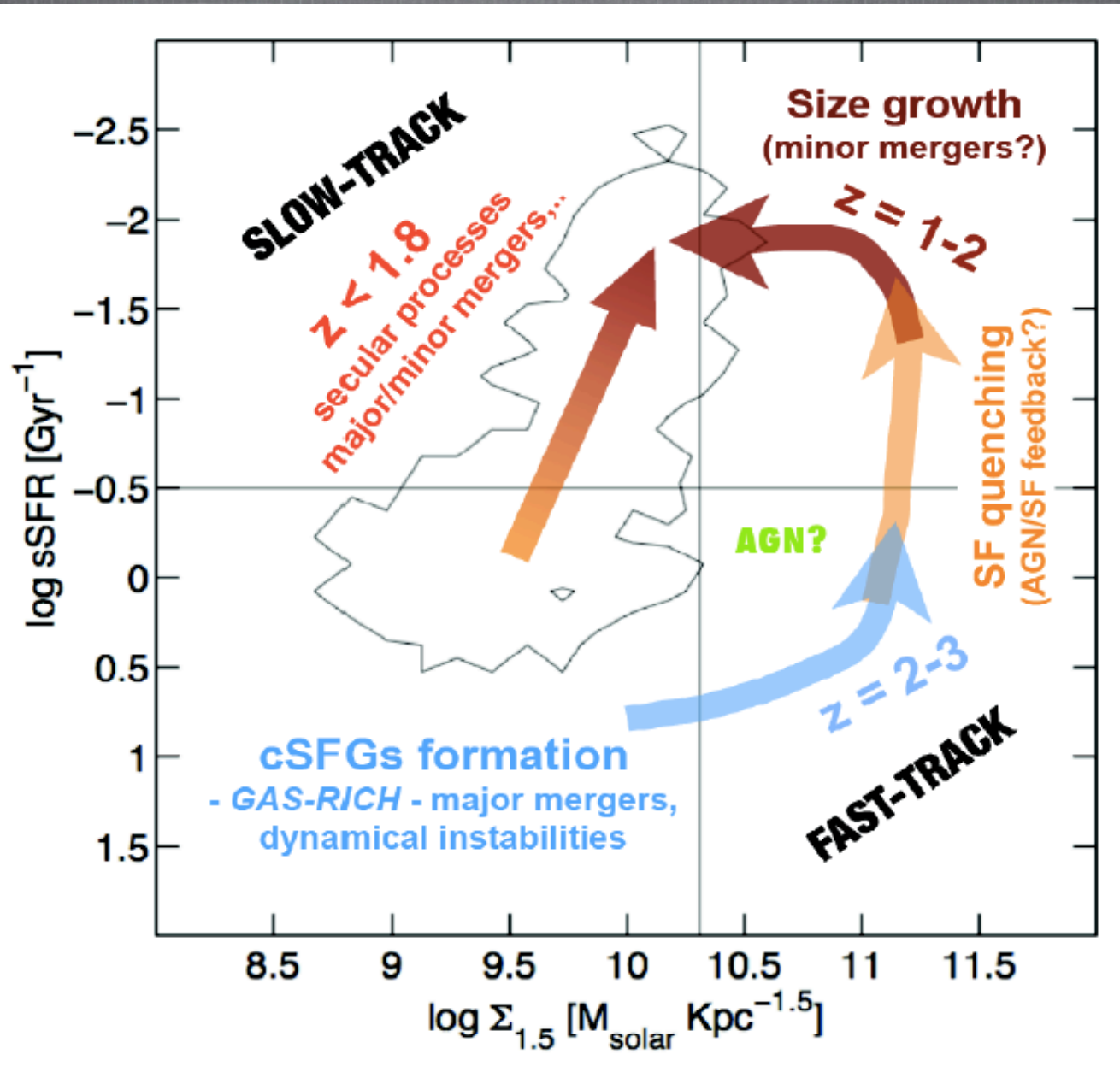
# seraic index



# Density of compact galaxies

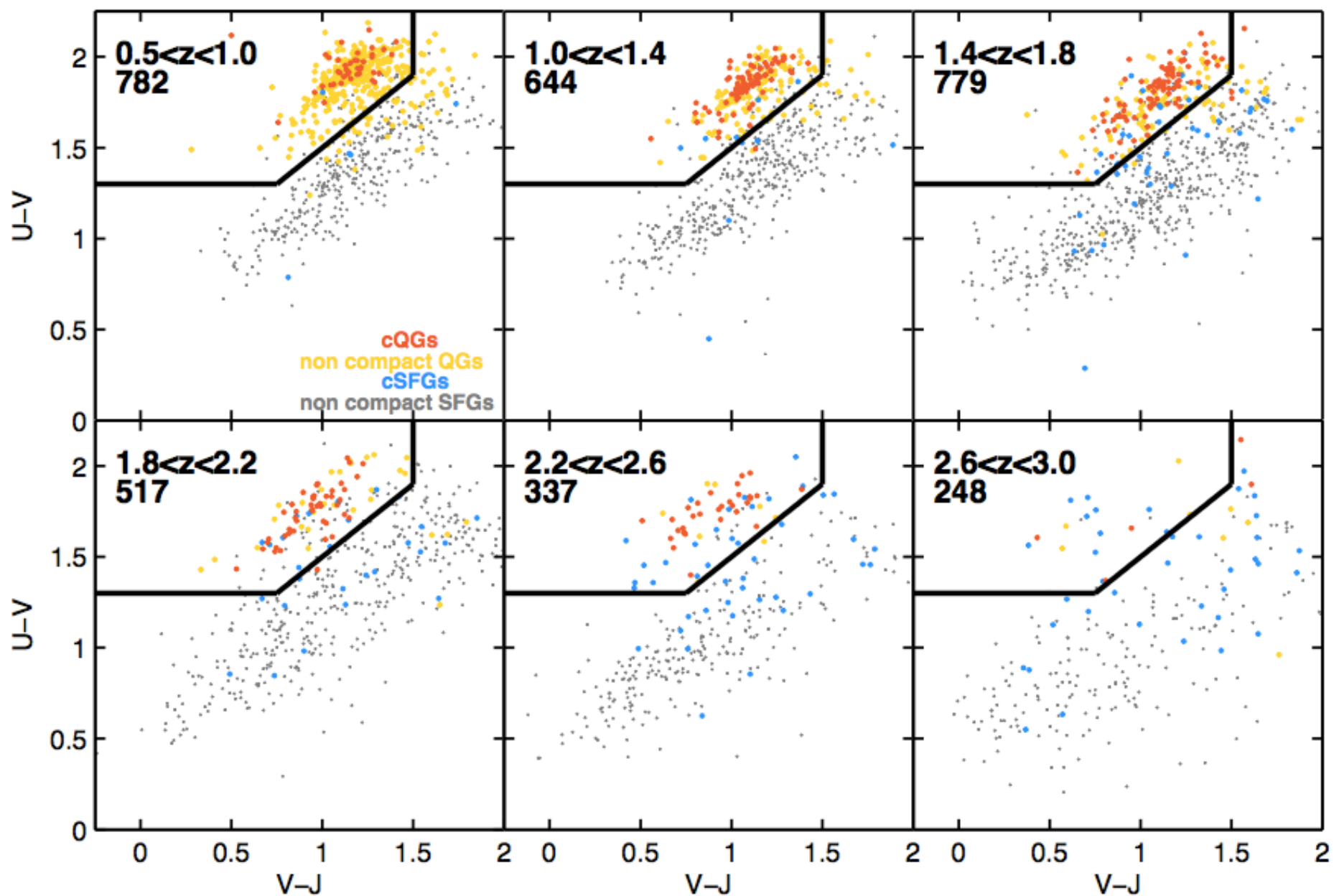


# Evolutionary paths to the red sequence

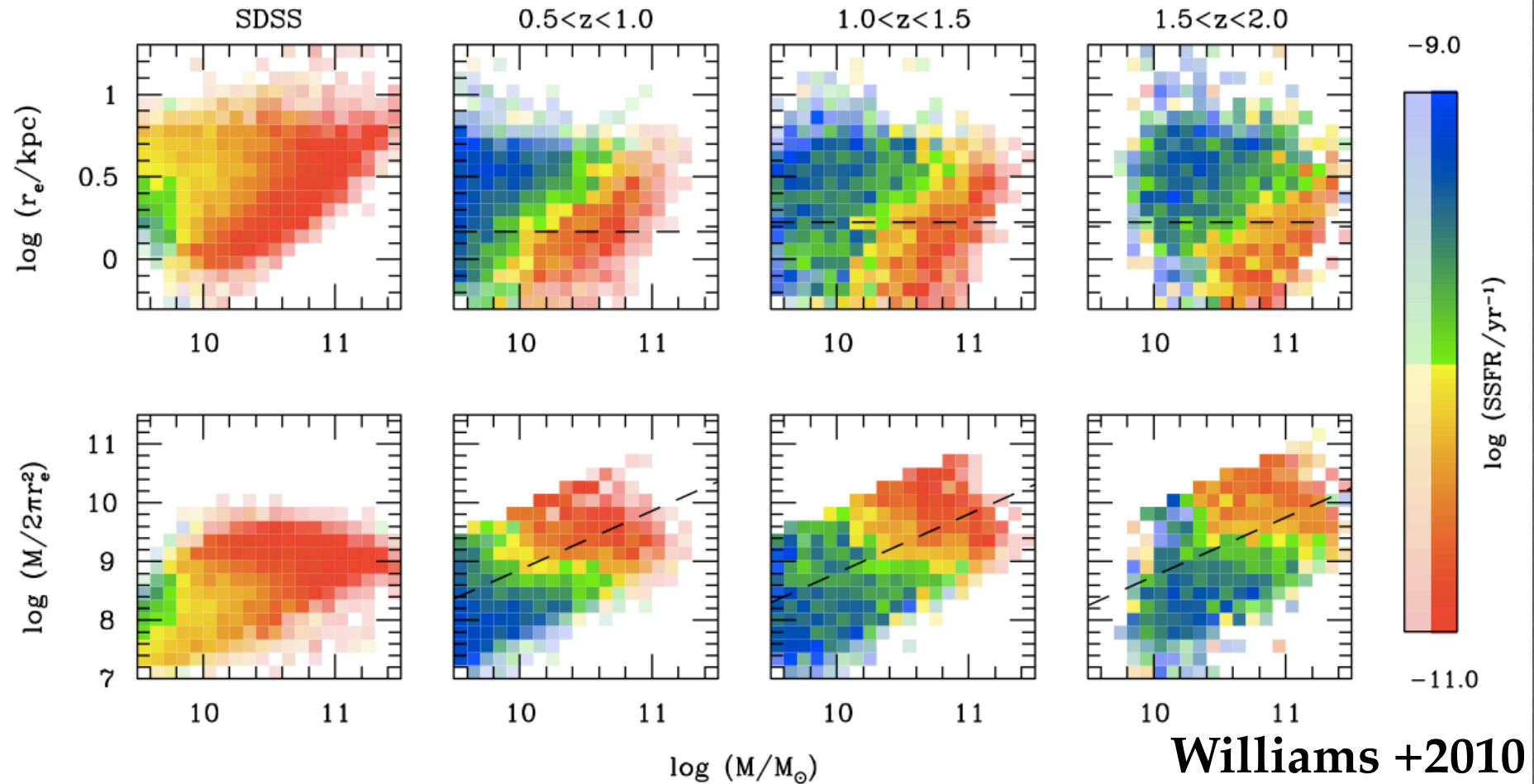




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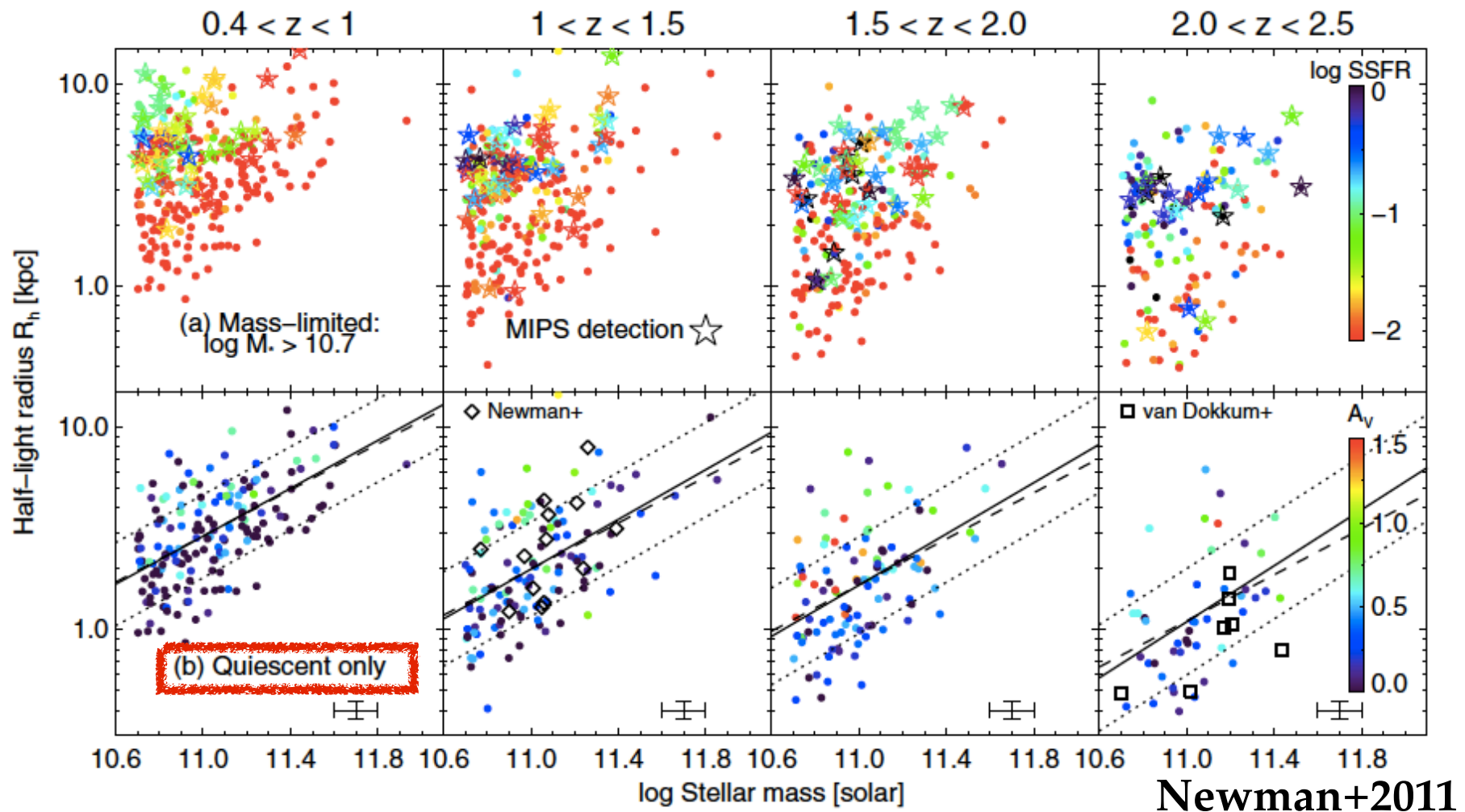


# The SFR-M plane



- SFGs and quiescent galaxies follow different Mass-Size relations

# Mass-Size relation



- Roughly constant slope
- Zero-point shifts towards smaller radii