

The stellar-halo mass connection of model [OII] emitters at $z \sim 1$

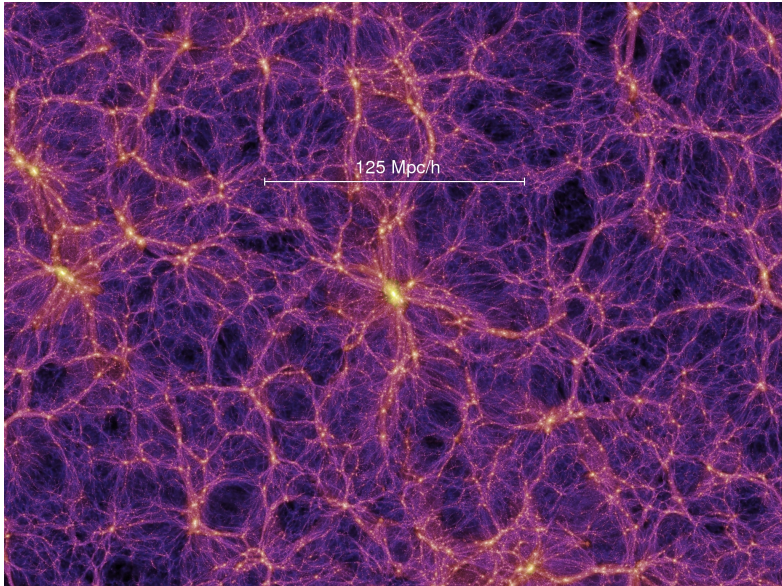
Violeta Gonzalez-Perez

@violegp

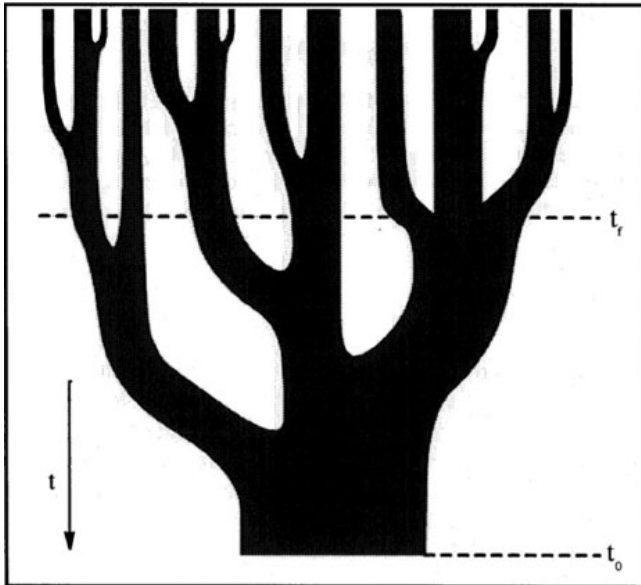
Peder Norberg (Durham), **Johan Comparat** (Madrid), **Sergio Contreras** (Chile)
Nuala McCullagh (Durham), **Cedric Lacey** (Durham), **Carlton Baugh** (Durham)
and **Álvaro Orsi** (CEFCA)



The semi-analytical approach



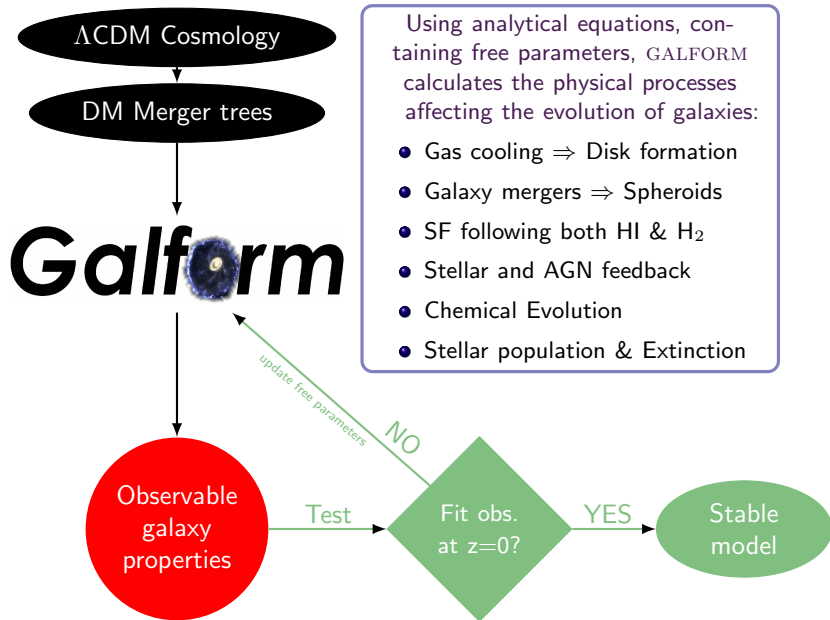
The semi-analytical approach



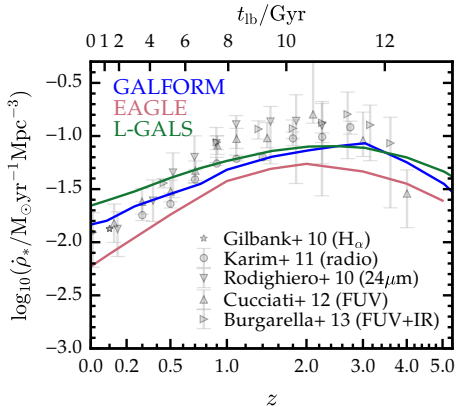
The semi-analytical approach



Calibrating the semi-analytical model

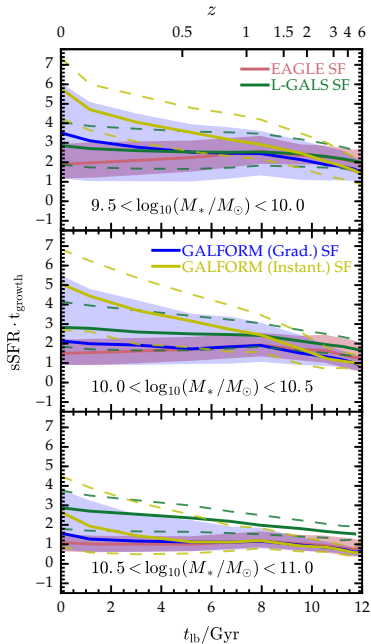


The G16 model (Guo, Gonzalez-Perez et al. 2016)

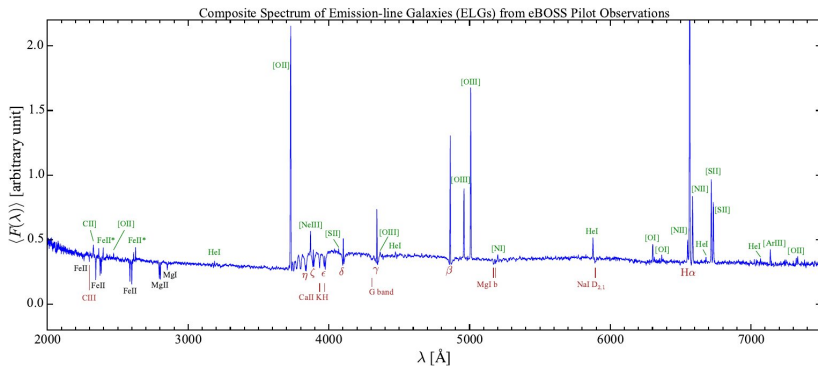


$$t_{\text{growth}}^{-1}(\text{Gyr}^{-1}) = \frac{dM/dt}{M(z)}$$

$$M(z) = M_0(1+z)^{\alpha}e^{\beta z}$$

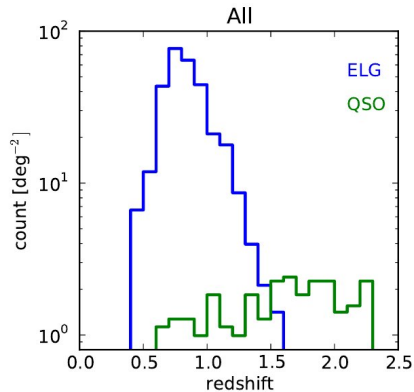
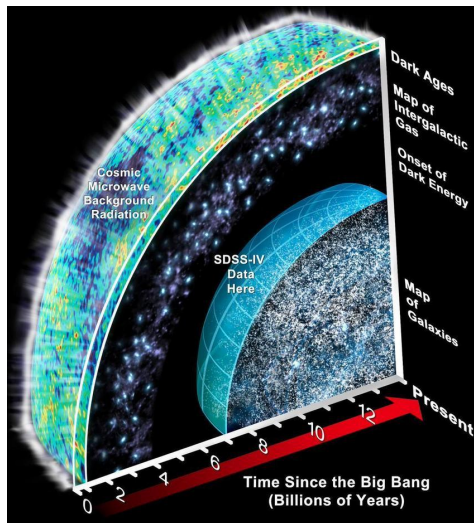


Emission line galaxies



Zhu+16

Why [OII] emitters?



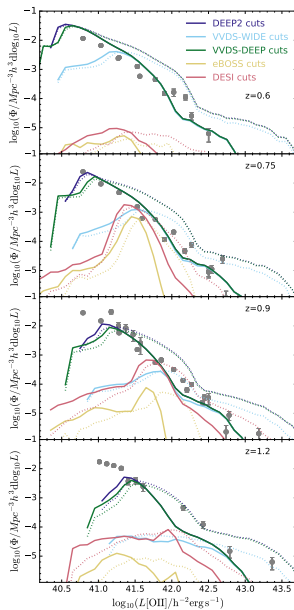
Comparat et al. 2015

Mimicking the observational selection

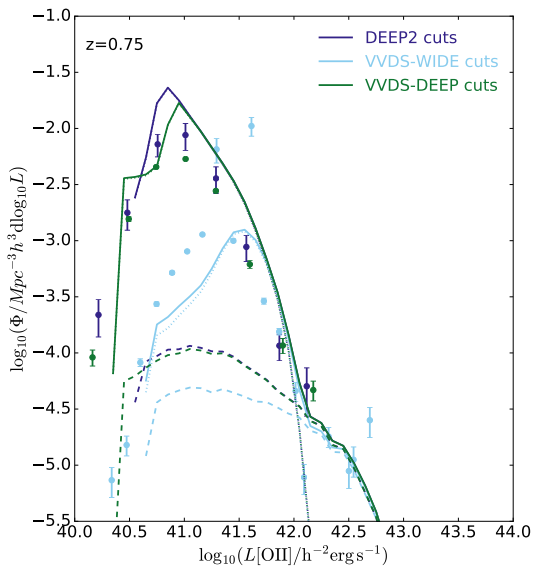
Cuts on	Apparent magnitude	$F_{\text{[OII]}}$	Colour
DEEP2	$R < 24.1$	2.7	None
VVDS-DEEP	$17.5 \leq i \leq 24$	1.9	None
VVDS-WIDE	$17.5 \leq i \leq 22.5$	3.5	None
eBOSS	$22.1 < g < 22.8$	1	$0.3 < (g - r) < 0.7$ & $0.25 < (r - z) < 1.4$ & $0.5 * (g - r) + 0.4 < (r - z)$ & $(r - z) < 0.5 * (g - r) + 0.8$
DESI	$g > 20.45$ & $r < 23.5$	1	$0.285 < (r - z) < 1.585$ & $1.1458 * (r - z) - 0.209 < (g - r)$ & $(g - r) < 1.4551 - 1.1458 * (r - z)$

The tabulated magnitude and flux cuts, $F_{\text{[OII]}}(10^{-17} \text{ erg s}^{-1} \text{ cm}^{-2})$, have been applied to the model galaxies.

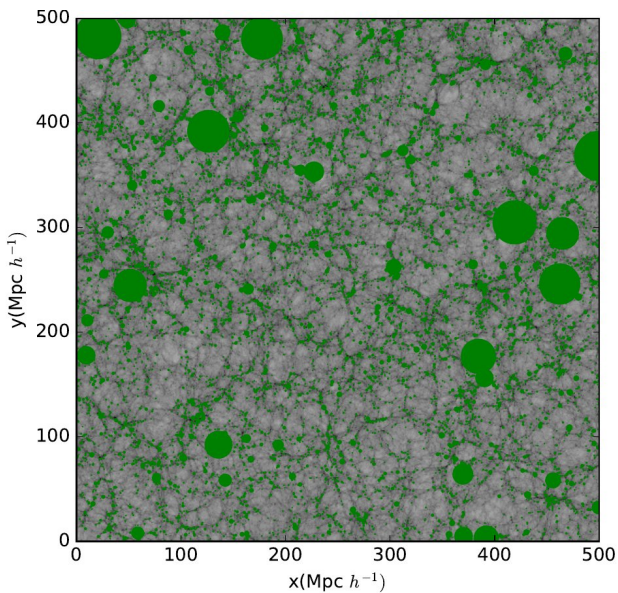
The [OII] emitters luminosity function



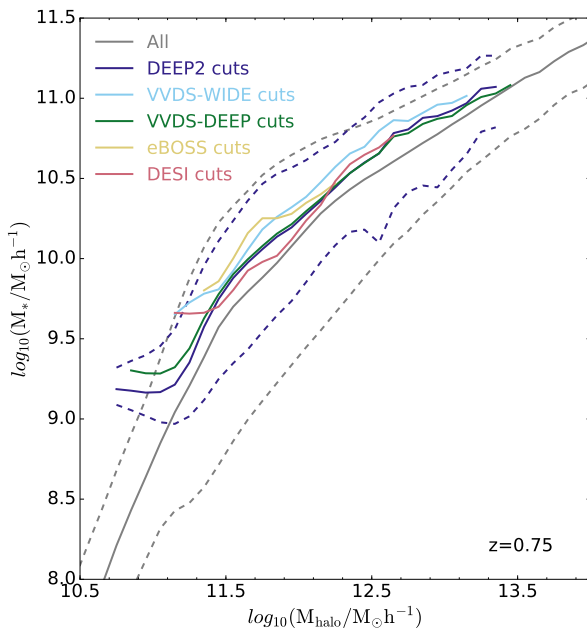
The contribution from bursty [OII] emitters to the LF



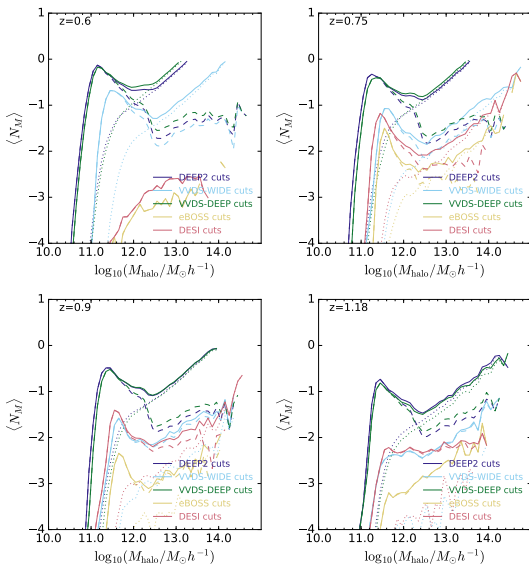
The spatial distribution of [OII] emitters at $z = 0.9$



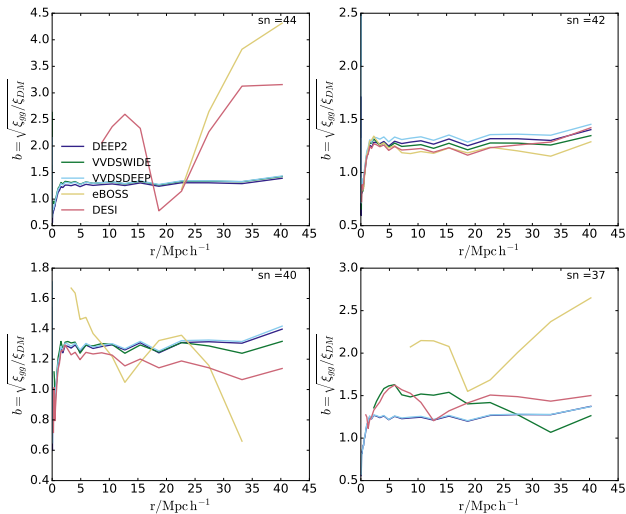
The stellar-halo mass relation



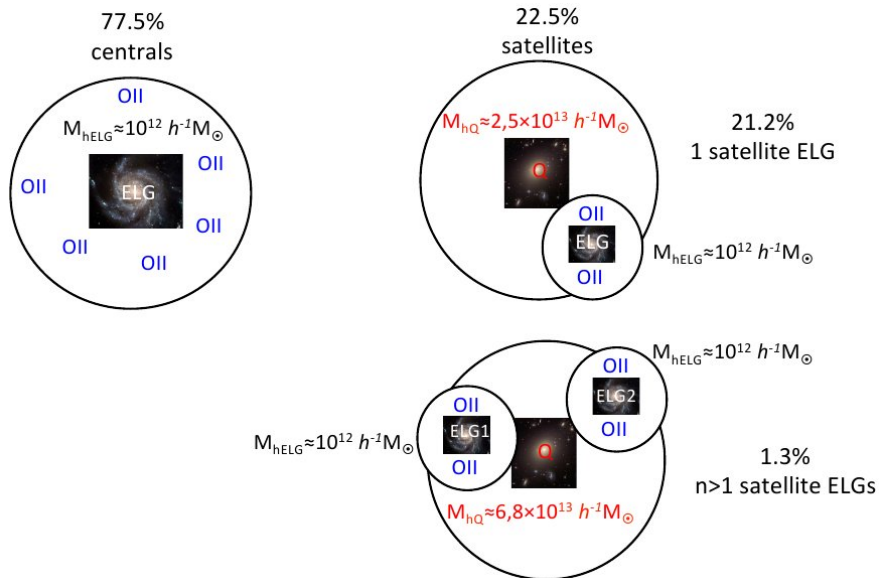
The mean HOD of [OII] emitters



The bias of [OII] emitters



Observations combined to MultiDark give a similar picture:



Take home points:

- Model [OII] emitters are hosted by haloes with $M > 10^{11.5} M_{\odot} h^{-1}$.
- Over 90% of [OII] emitters are central galaxies.
- At most 2 model satellite [OII] emitters are found in haloes with $M > 10^{13.5} M_{\odot} h^{-1}$.

Gonzalez-Perez et al. in prep