A rich proto-cluster of Lyα sources at z≃6.5

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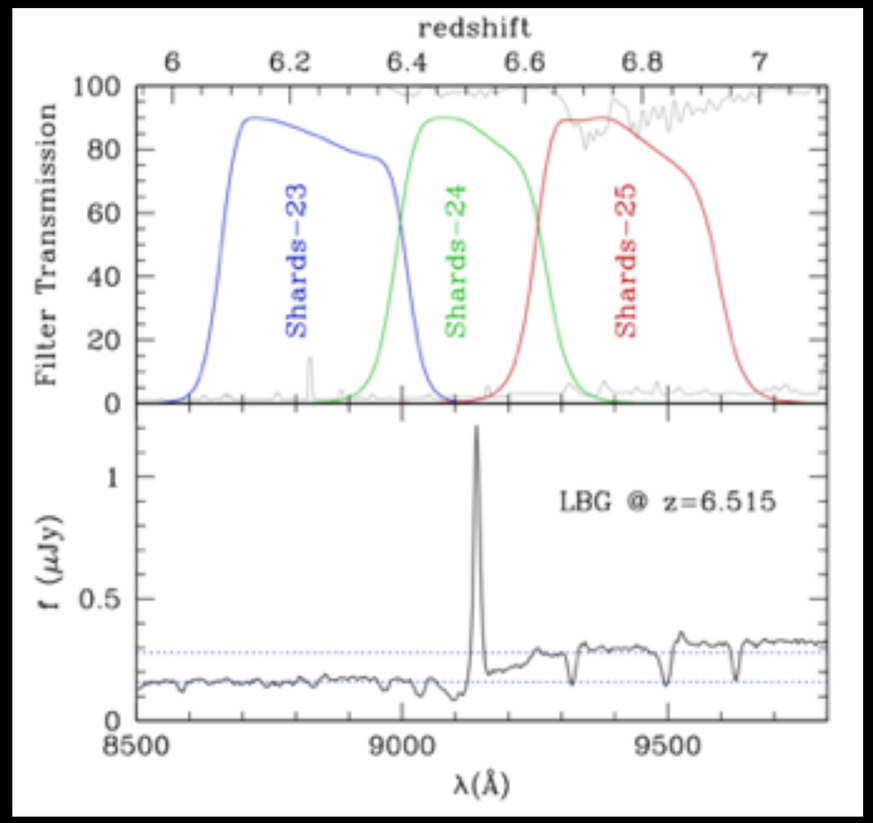
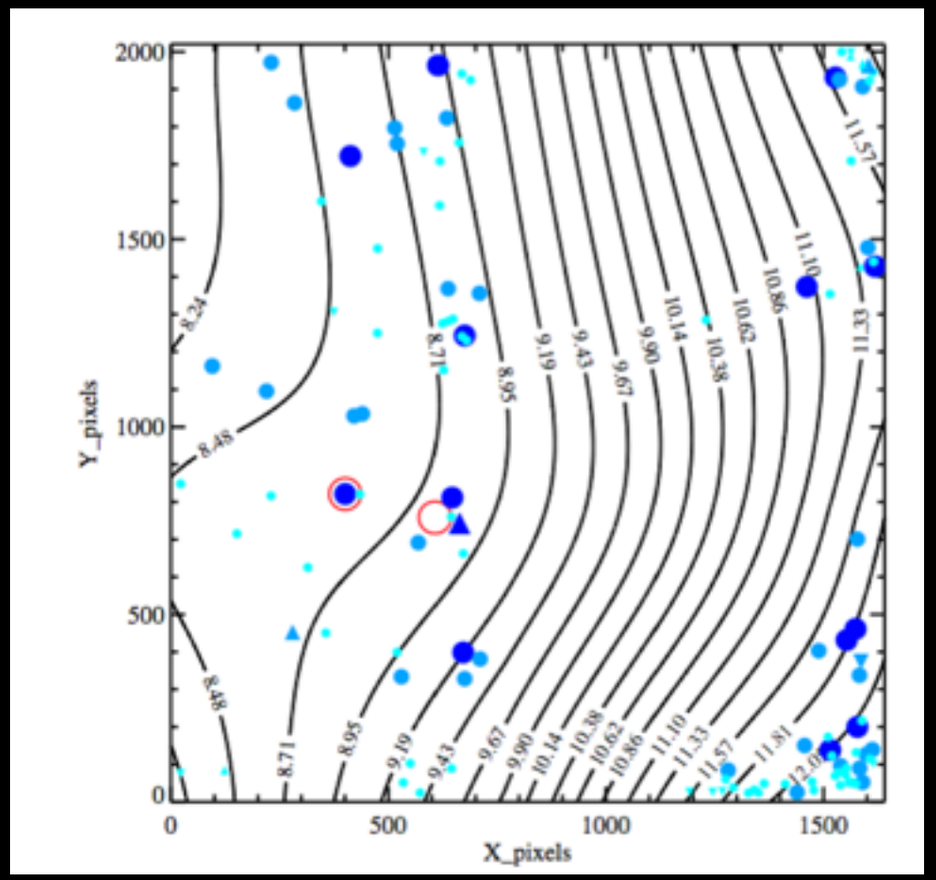
EWASS, Athens 2016

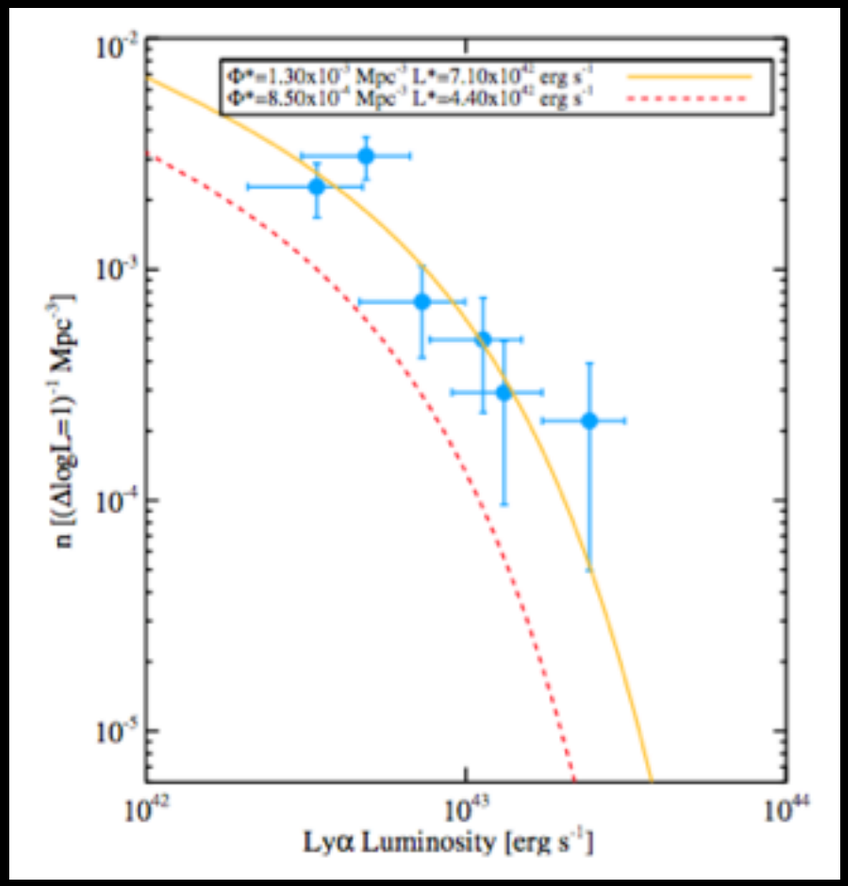


Filter	Exposure time (sec)
SF883w35	69950
SF913w25	71000
SF941w33	80100

Graphs



Map of sources



Luminosity Function

z	Φ^* (10^{-3} Mpc^{-3})	L* (10^{42} erg s^{-1})	α
(1)	(2)	(3)	(4)
6.5	$1.30^{+0.44}_{-0.35}$	$7.10^{+1.57}_{-1.62}$	1.5 (fix)
6.6	$0.85^{+0.30}_{-0.22}$	$4.40^{+0.60}_{-0.60}$	1.5 (fix)

Parameters from the LF

Evolution of the over density

- $\rho m/\langle \rho m \rangle = \Phi^{*}ALBA/\Phi^{*}Ouchi$, So $\delta = \rho m/\langle \rho m \rangle - 1 = 0.75$
- $\rho m = 4.08 \times 10^{10}\ M_{\odot} \times 1.75 = 7.14 \times 10^{10}\ M_{\odot}/Mpc^{3}$

Given the observed volume through our filter SF913w25 (3425 Mpc^{3}) (half the volume!)

- The mass of the over density is: $2.08 \times 10^{14}\ M_{\odot}$

- Since $\delta(z_{coll})/\delta(6.5) \simeq D(z_{coll})/D(6.5)$

- So, the over-density will collapse at $z_{coll} = 2.1$

- And assuming there are no major mergers, the mass of the corresponding halo at z=0 will be $1.29 \times 10^{15}\ M_{\odot}$

This would be a halo similar to the Coma at the present time!!!