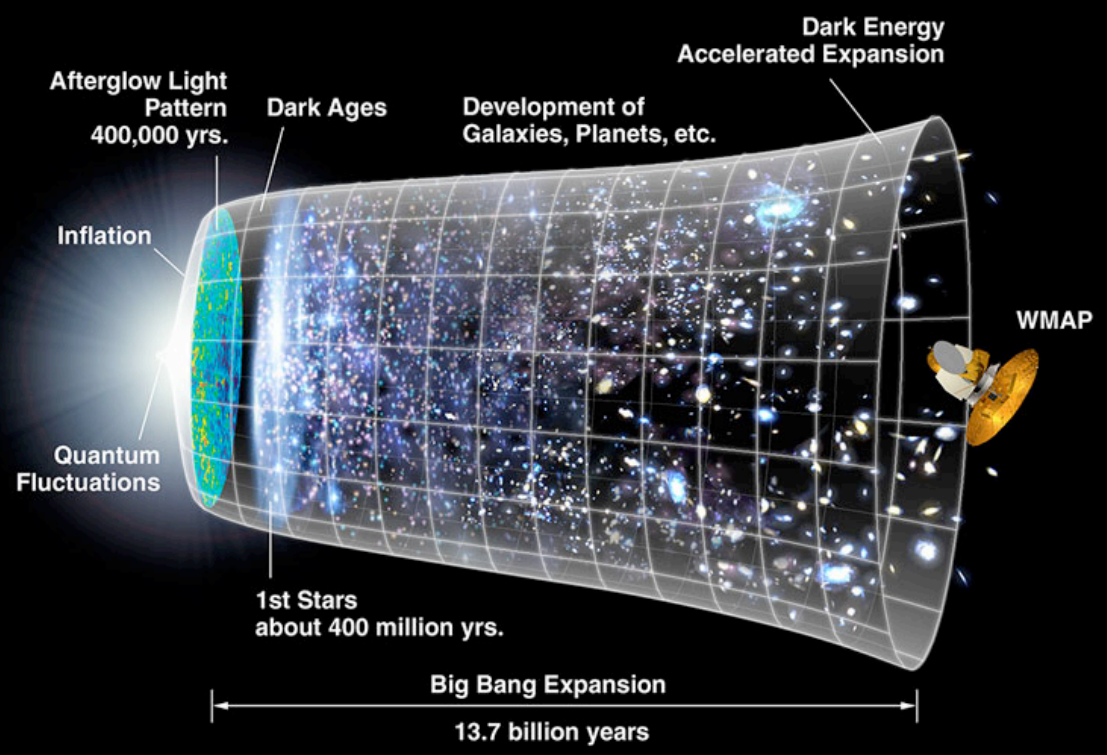
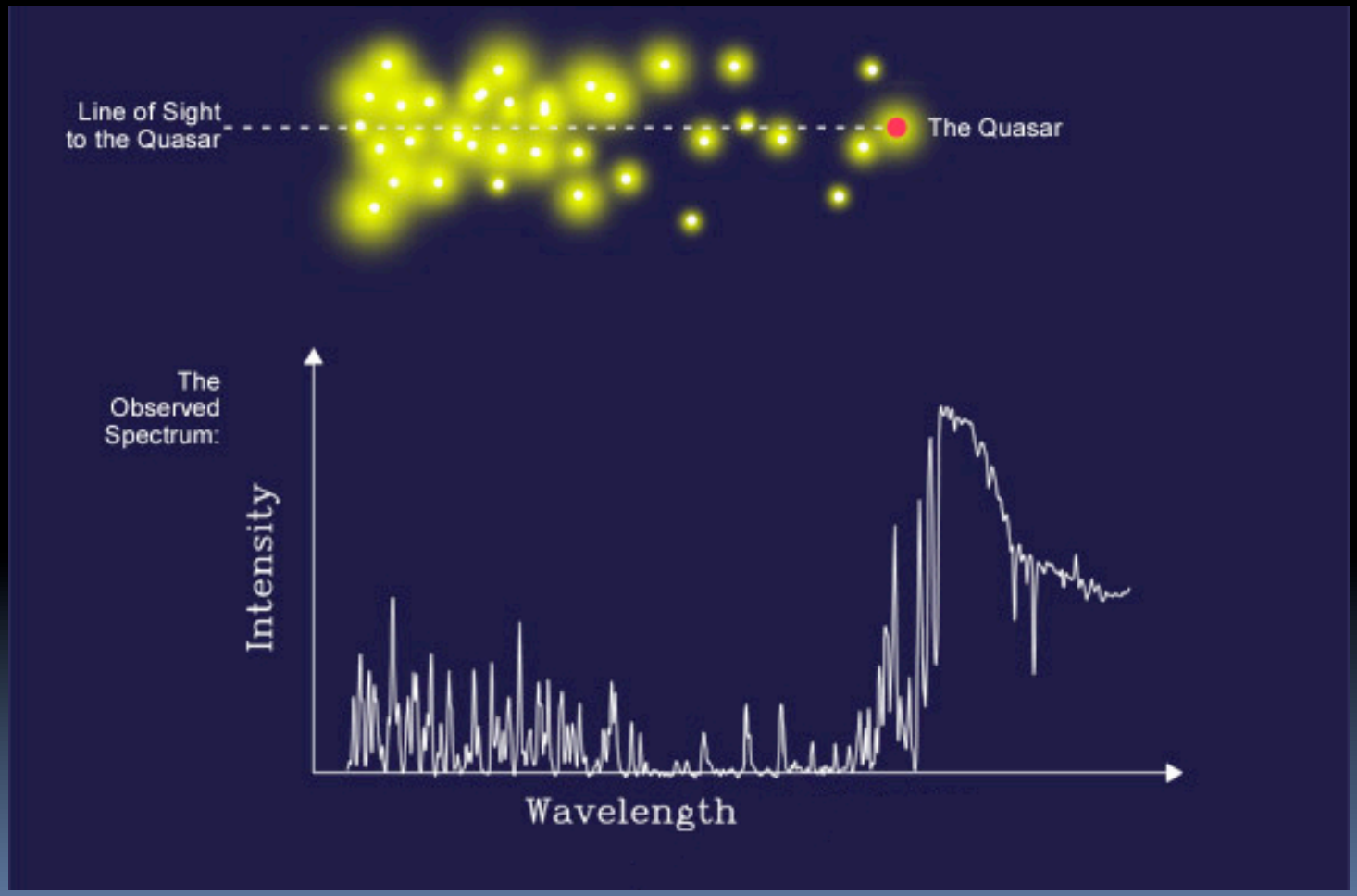
STAR-FORMING GALAXIES AT Z≈8-9 FROM *HST*/WFC3: IMPLICATIONS FOR REIONIZATION

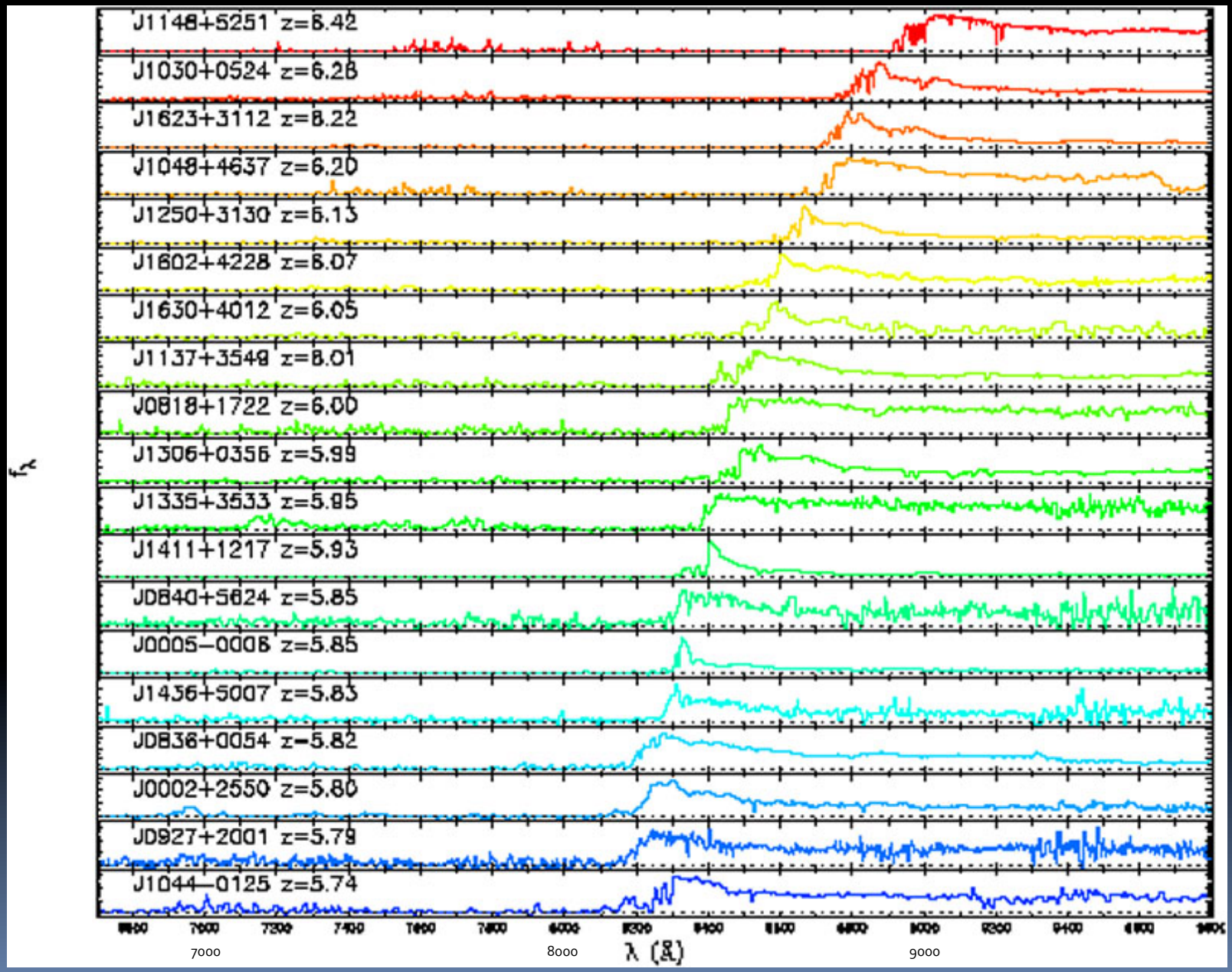
Silvio Lorenzoni, Andy Bunker, Stephen Wilkins, Joseph Caruana

Reionization



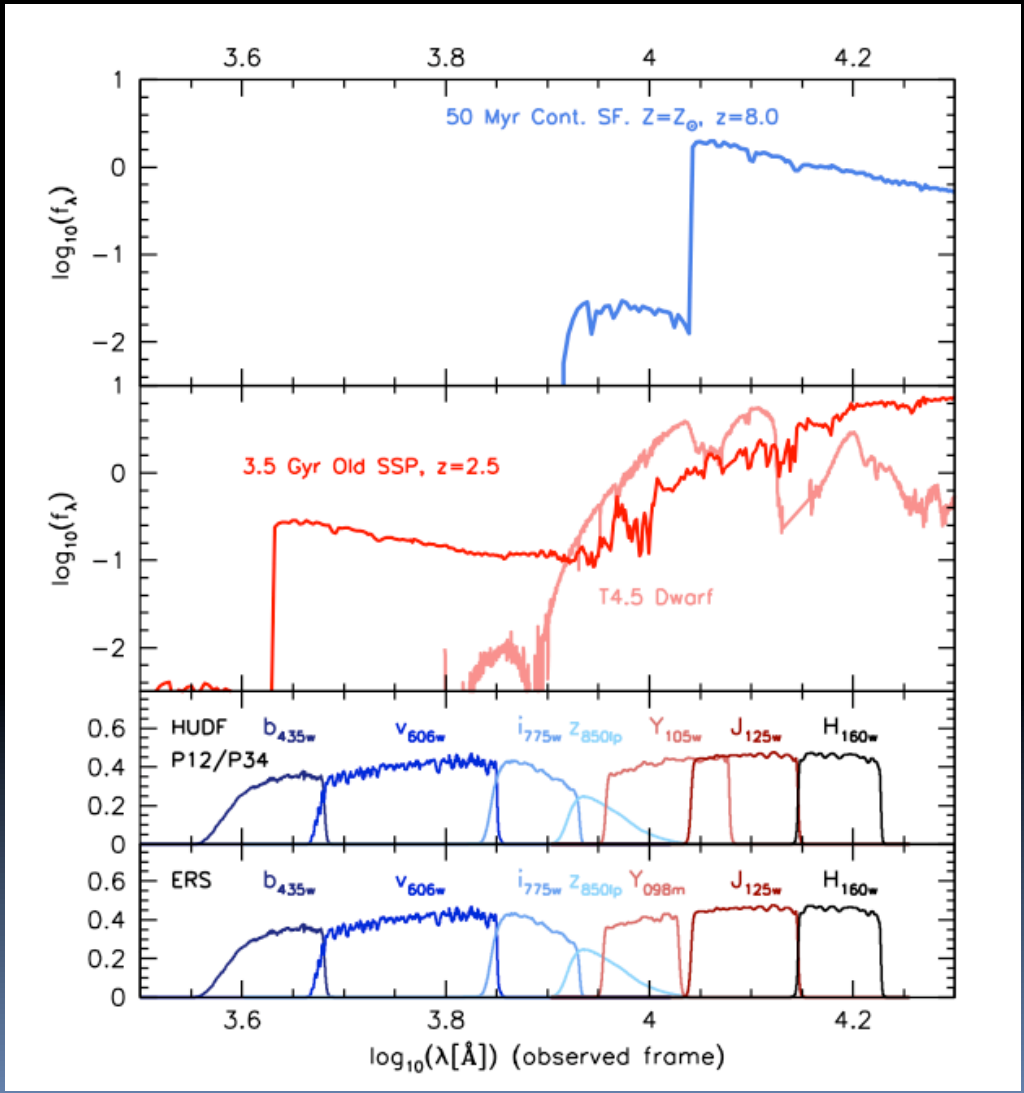
Gunn-Peterson effect





Fan et al. (2006), AJ 132 117

Lyman break technique



Data

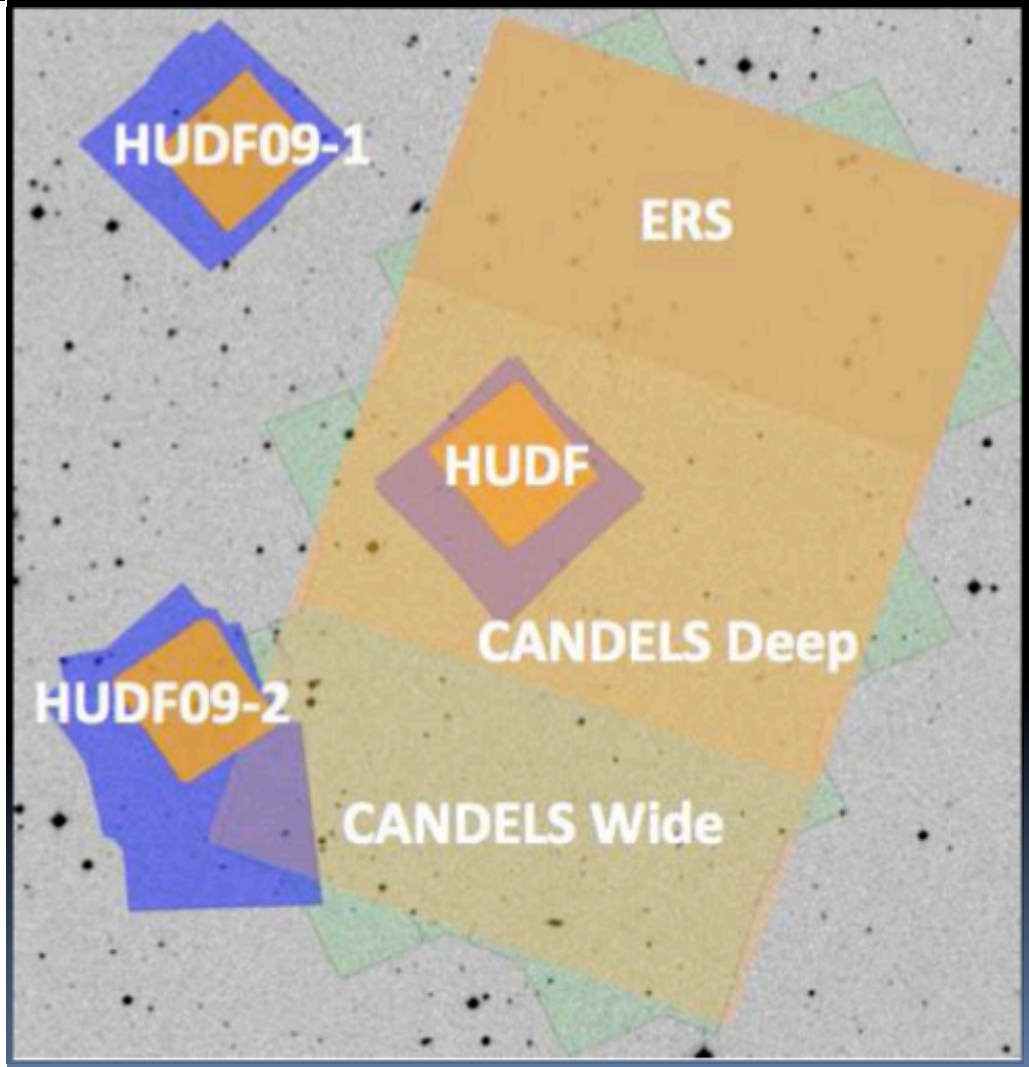
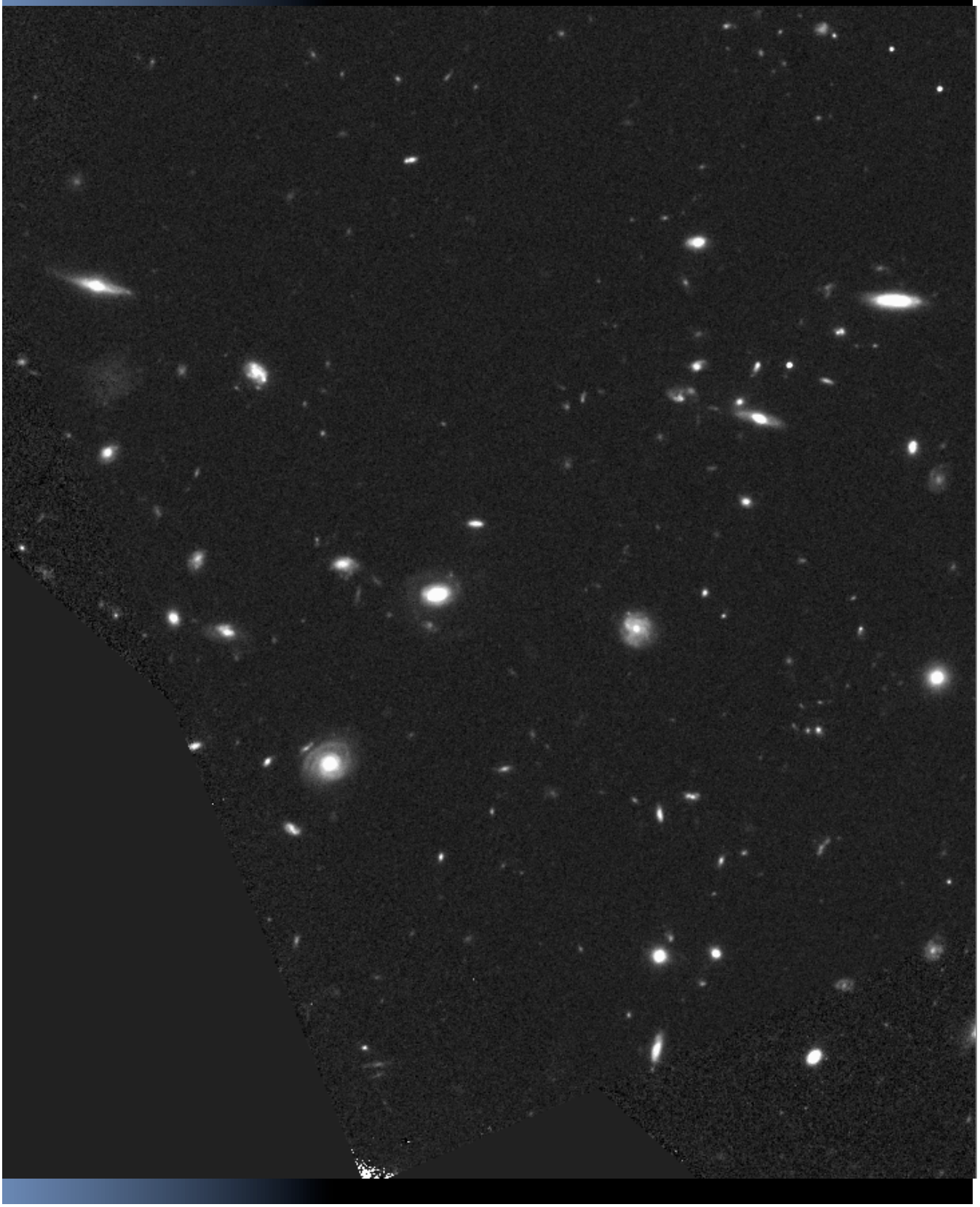


figure from Oesch et al. (2011), arXiv:1105.2297

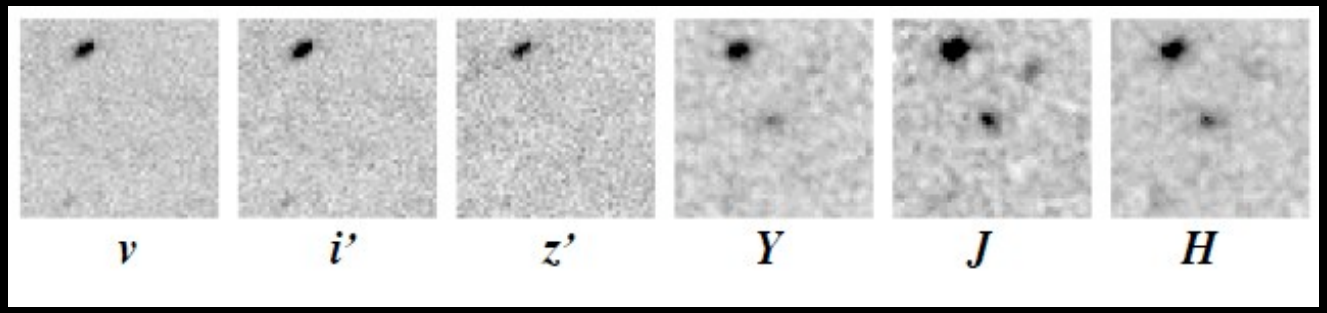
5-σ depths (AB magnitudes)

	Y-band	*J*-band	*H*-band
HUDF	28.7	28.7	28.7
HUDF09-2	28.5	28.6	28.4
HUDF09-1	28.2	28.5	27.2
ERS	27.0	27.4	27.1
CANDELS DEEP	27.8	27.3	27.2
CANDELS WIDE	26.8	26.9	26.6

(in case you didn't notice, it's over)



Candidates



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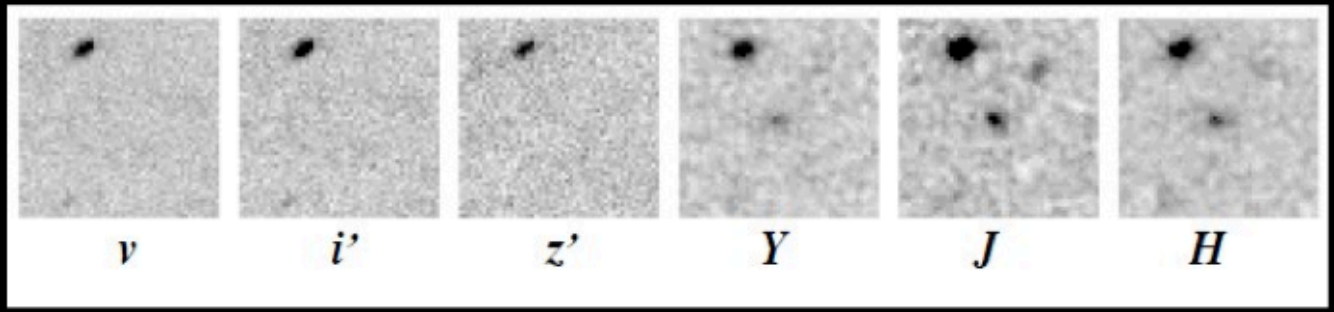
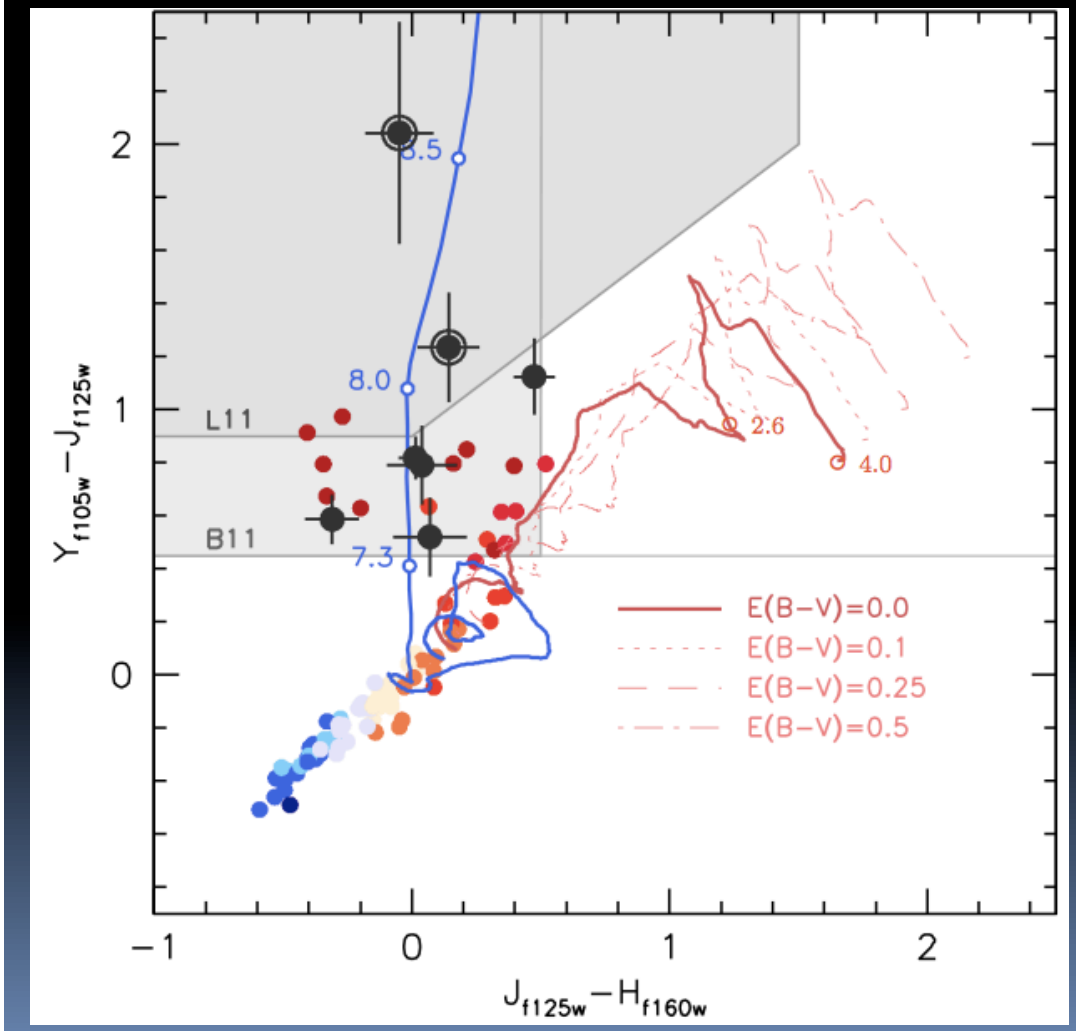
Candidates



Selection criteria

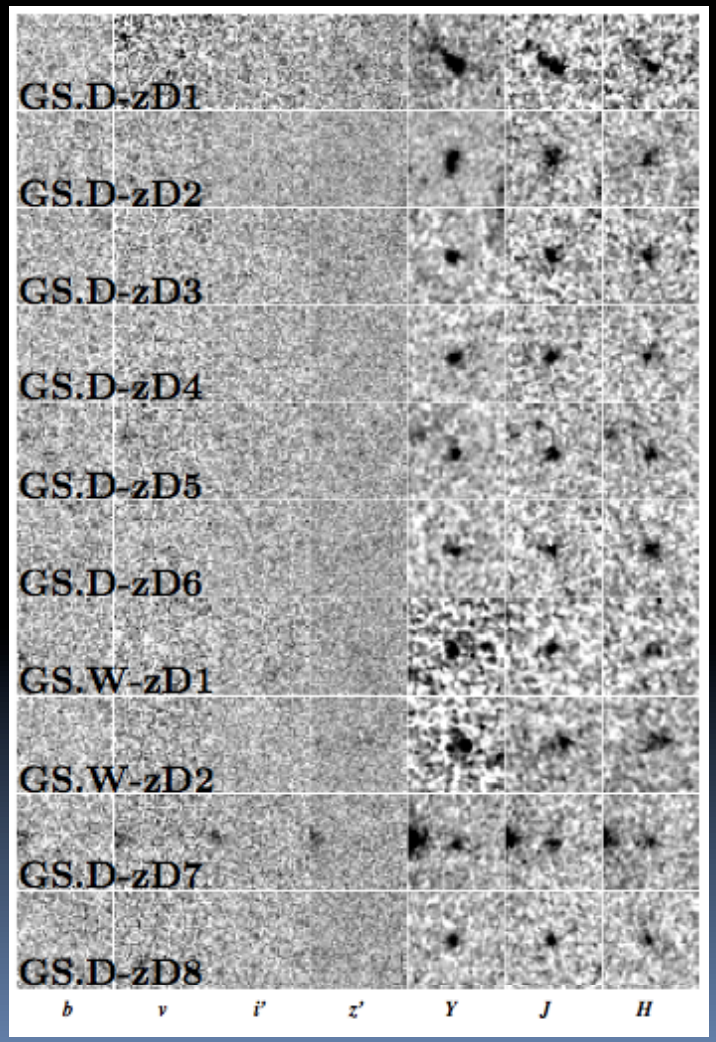


- >5σ detection in two bands longwards of the break
- <2σ non-detection in optic
- colour criteria

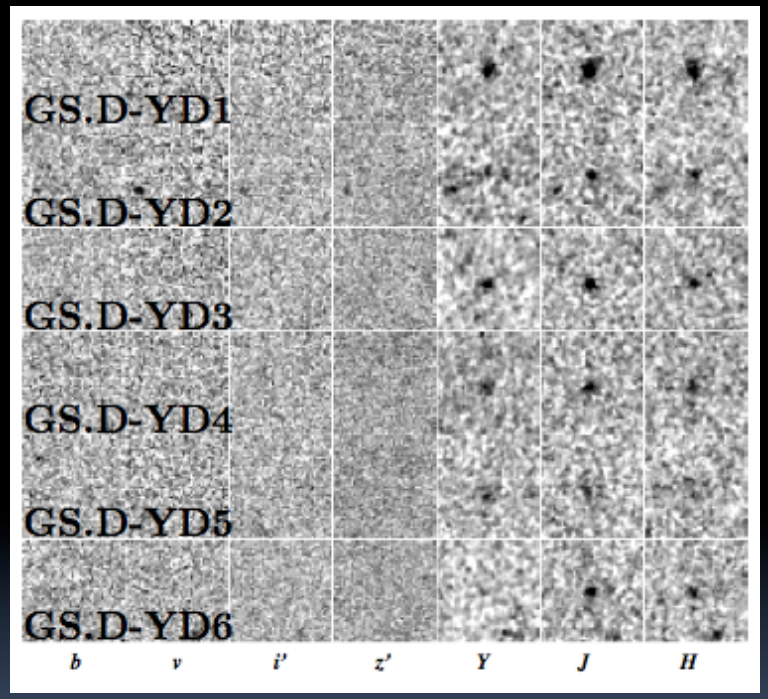
(in case you didn't notice, it's over)

CANDELS candidates

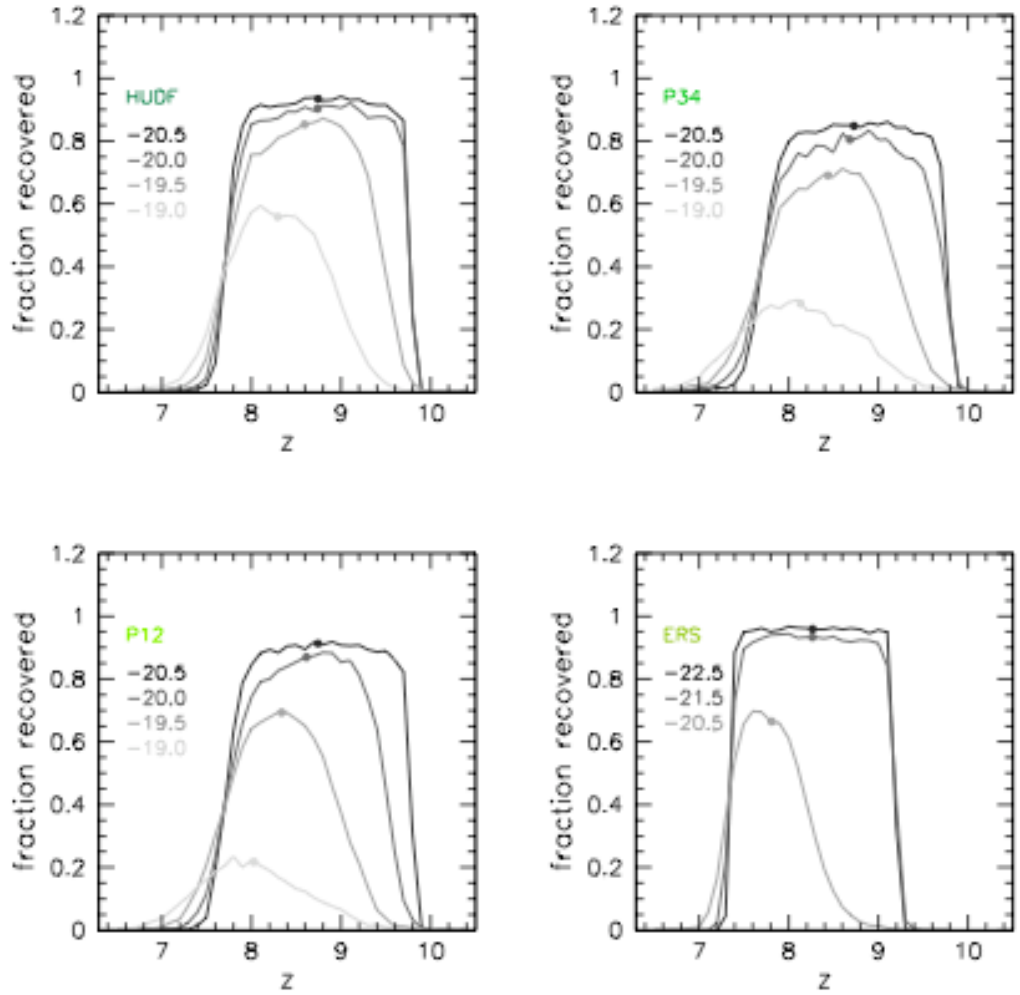
z'-drops



Y-drops

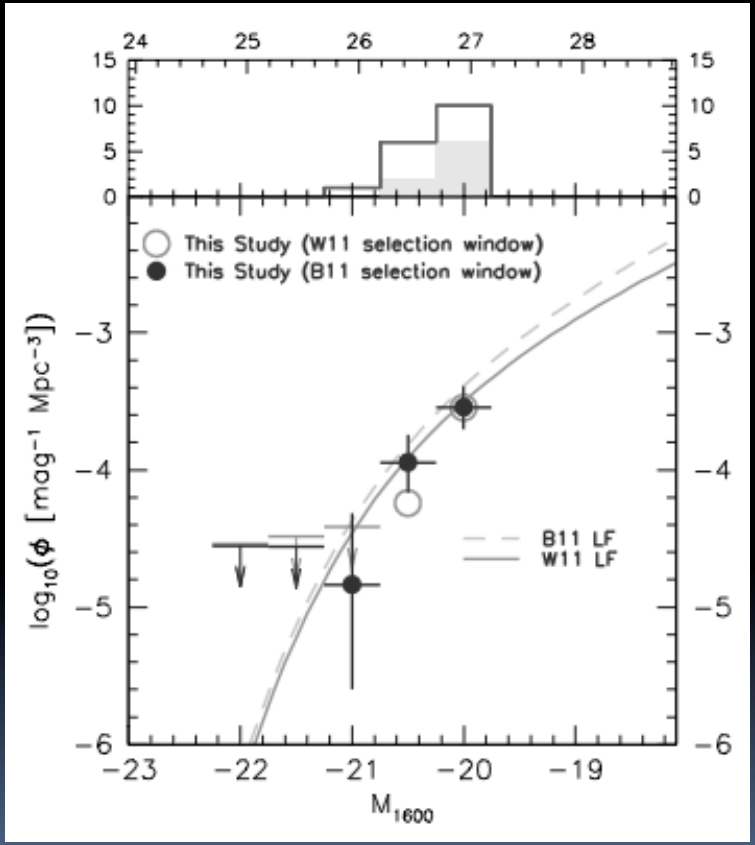


(in case you didn't notice, it's over)


HUDF
−20.5
−20.0
−19.5
−19.0
P34
−20.5
−20.0
−19.5
−19.0
P12
−20.5
−20.0
−19.5
−19.0
ERS
−22.5
−21.5
−20.5
fraction recovered
z
0
0.2
0.4
0.6
0.8
1
1.2
7
8
9
10

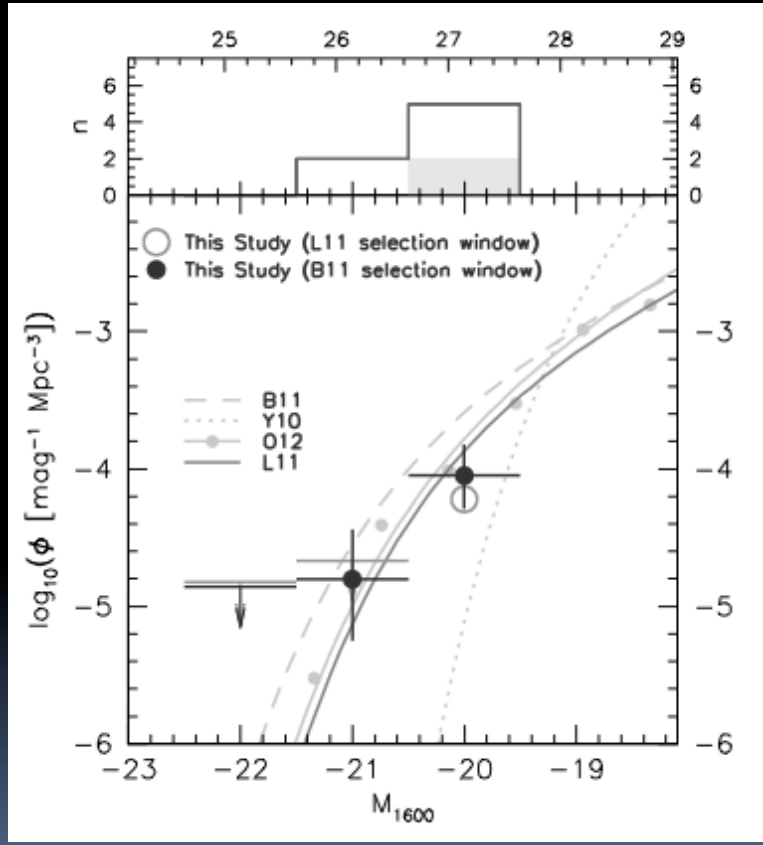
Luminosity functions

z ~ 7



α = -1.9 ; M* = -20.14
φ* = 0.00081

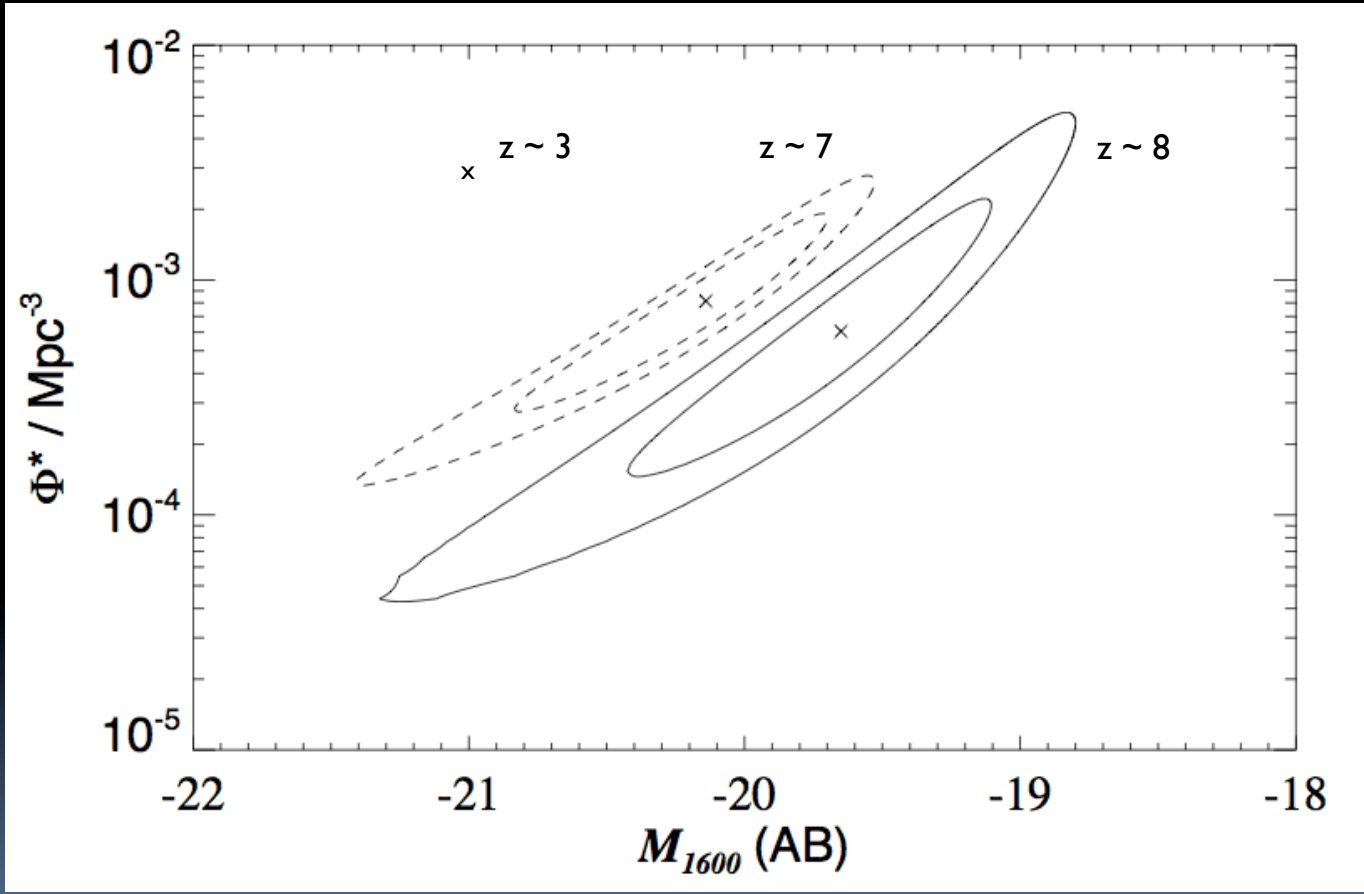
z ~ 8



α = -1.9 ; M* = -19.66
φ* = 0.00060

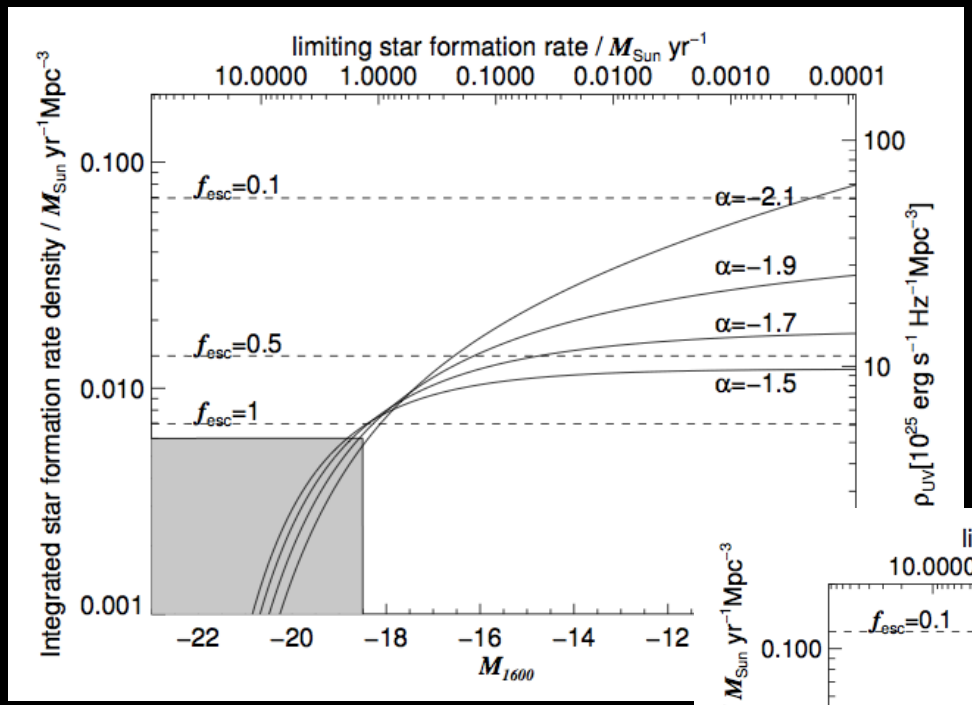
(in case you didn't notice, it's over)

LF evolution



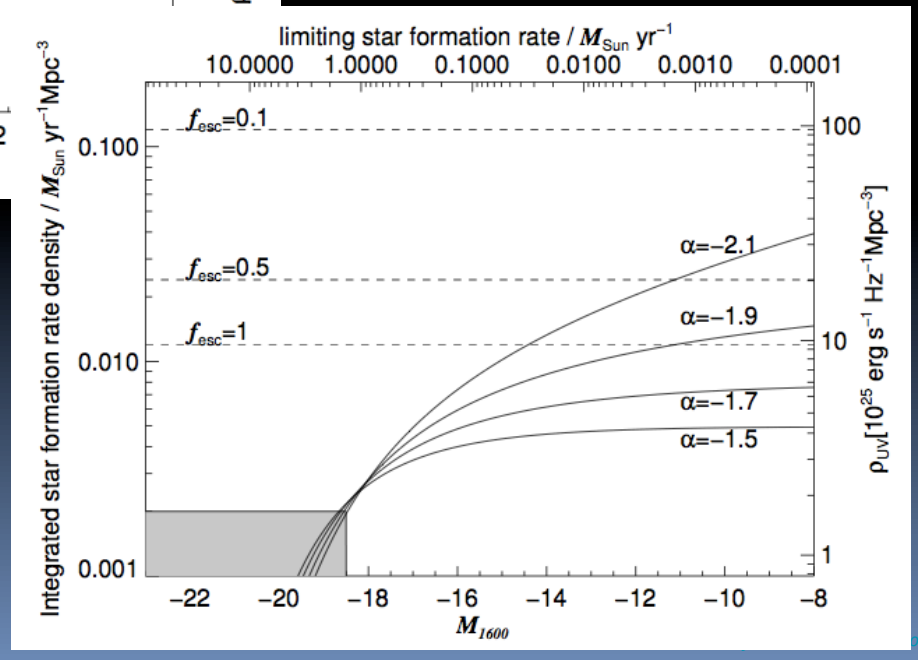
(in case you didn't notice, it's over)

Implications for reionization



z ~ 7

z ~ 8



Conclusions

LF evolution:

clear from z=3
evidence for evolution from z=6-7 to z=8-9
both in phi and M*
not enough data to constrain faint end slope.

Reionization:

candidates we detect have insufficient flux for reionization, but a steep faint end slope, low metallicity population and a top heavy IMF could all be factors that might provide enough ionizing photons