

Preliminary results on stellar populations of LAEs at $z=4.8$

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Data

- **Optical Data** toward HDF-N by Suprime-cam
 - 42' x 42' field of view
 - Broadband: B, V, R, Ic, z'
 - Narrow band: NB711



32 + 1 LAE candidates

Data (con.)



- **Infrared Data by SST**

- GOODS-N: ~150 square arcmin
- GOODS-N flanking field: ~300 square arcmin
- Pixel scale of 0.6"

Bandpass	3 σ limiting magnitude at 2.4" Φ aperture	
	GOODS-N	GOODS-FF
Ch1 (3.6 μ m)	26.0	25.0
Ch2 (4.5 μ m)	25.8	24.6

8 of 33 LAEs are used:

5 in GOODS-N and **3** in GOODS-FF.

SED Fitting

- Observed SEDs of 4 bandpasses:
 - Ic, z', IRAC ch1 (3.6 μ m), and ch2 (4.5 μ m)
- Model SEDs
 - BC03 with Salpeter IMF
 - Constant Star Formation history (CSF)
 - 0.2 Z_{\odot} Metallicity
 - Calzetti extinction law (2000)
 - H α line in IRAC ch1

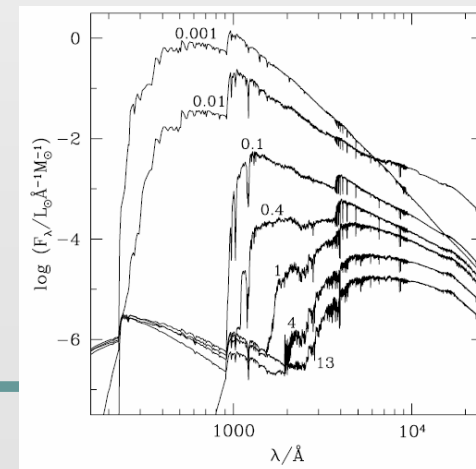
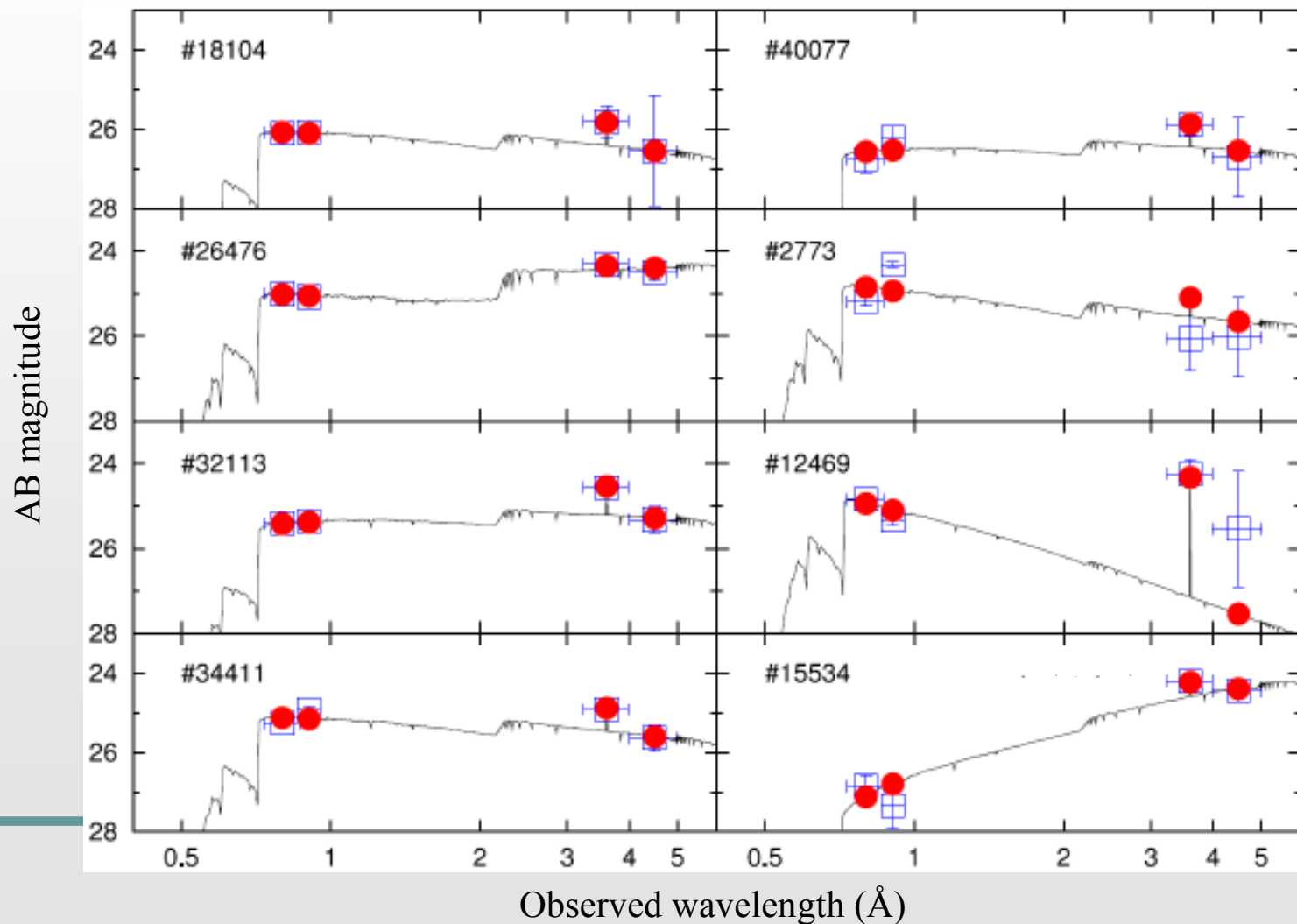


Figure by BC03

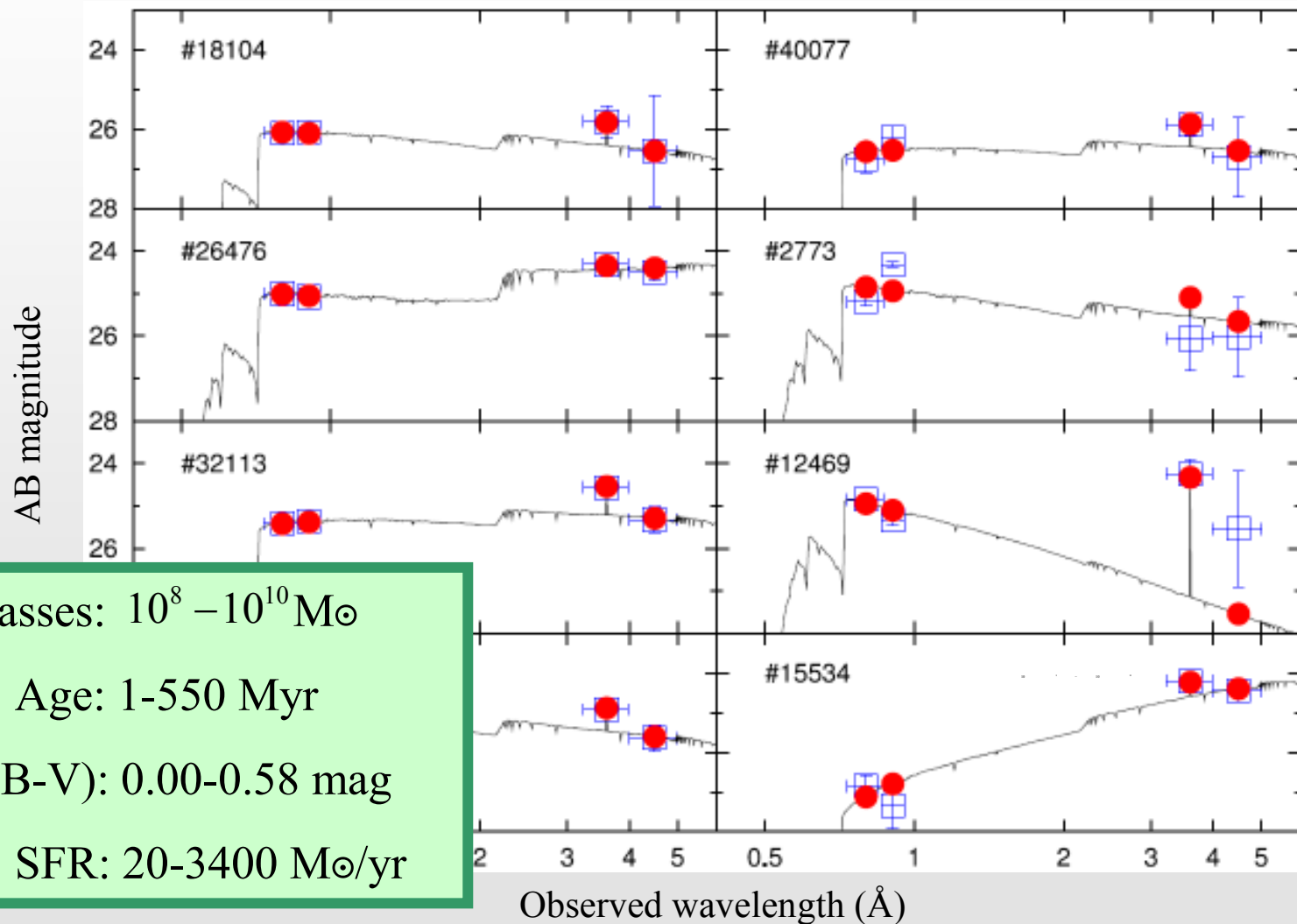
Results

- Best-fitted model spectra with observed SEDs



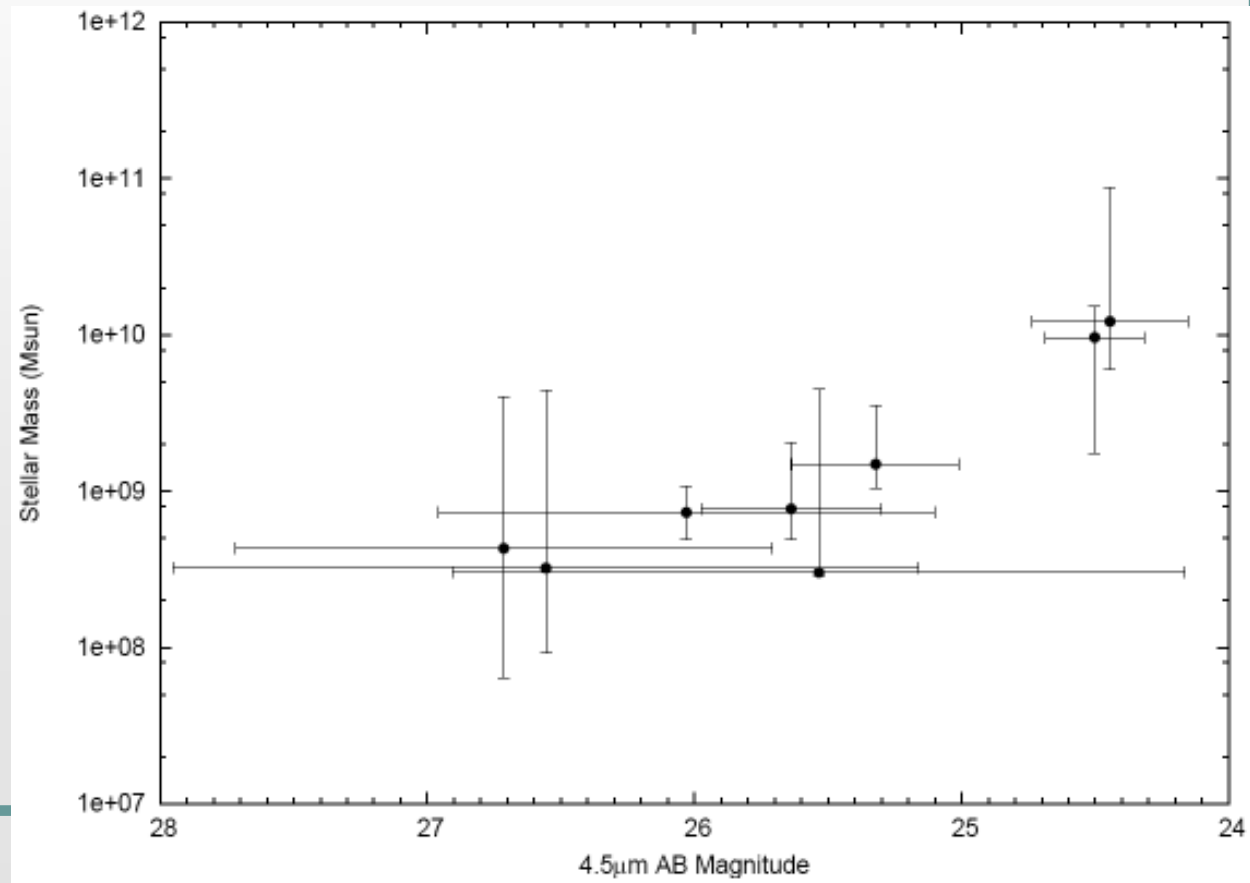
Results

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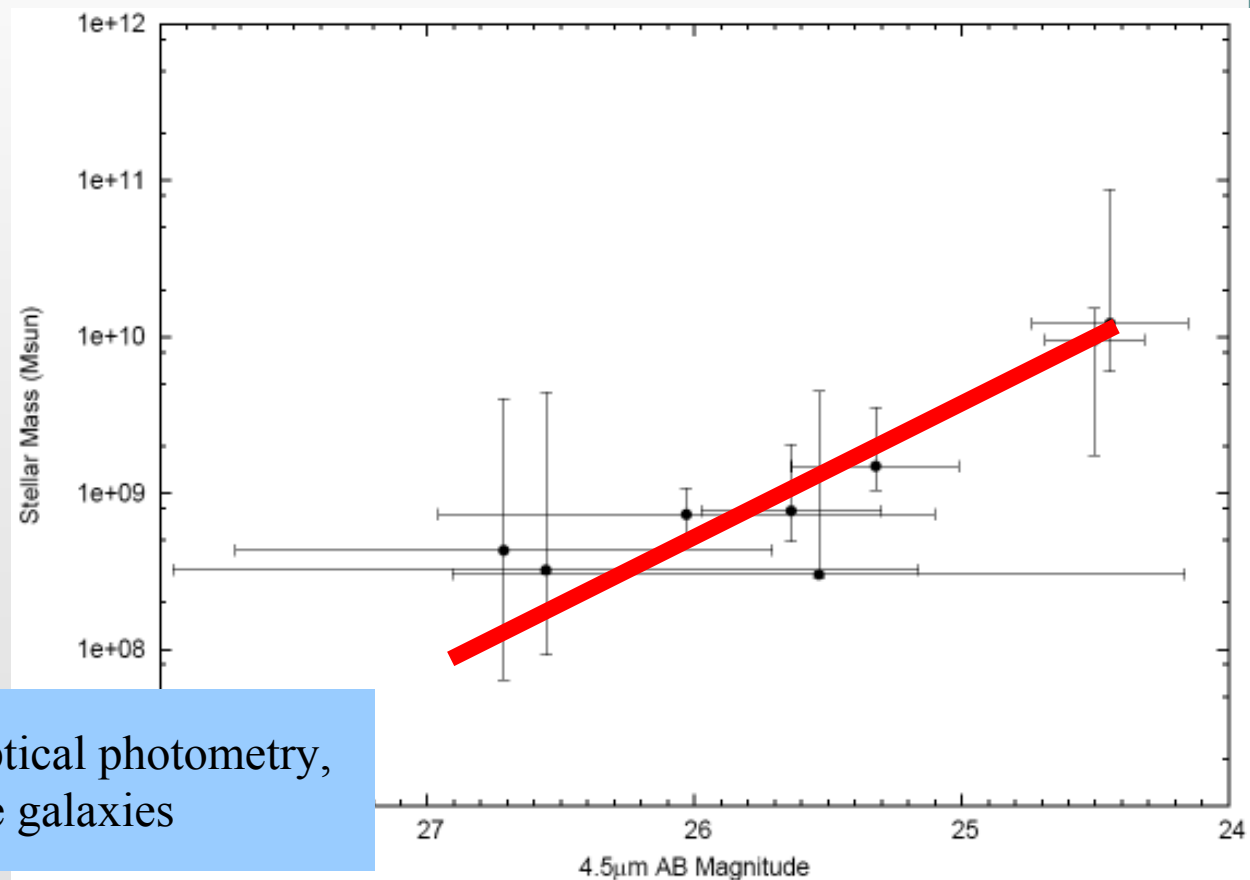
Results (con.)

- Relations of stellar masses and rest-frame optical brightness



Results (con.)

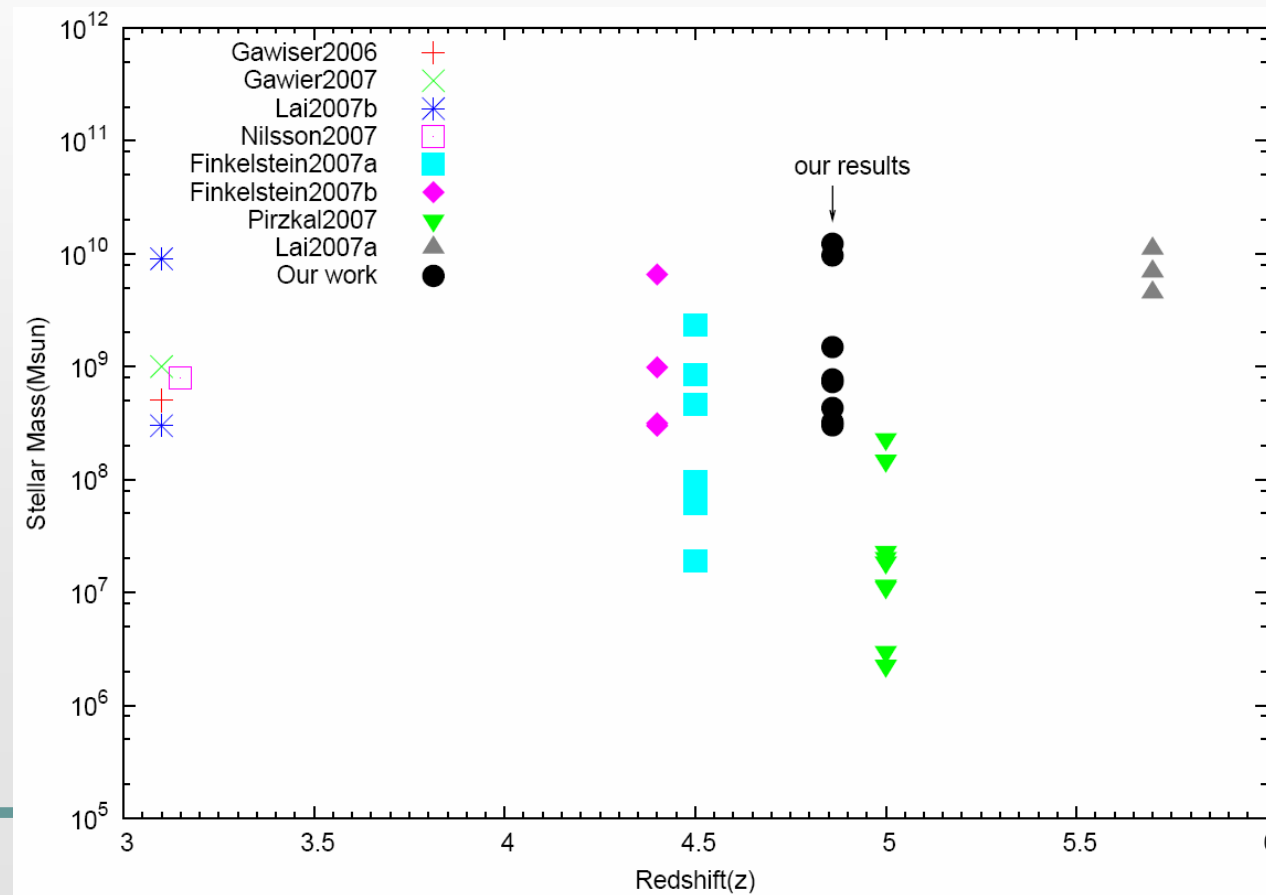
- Relations of stellar masses and rest-frame optical brightness



The brighter rest-frame optical photometry,
The more massive galaxies

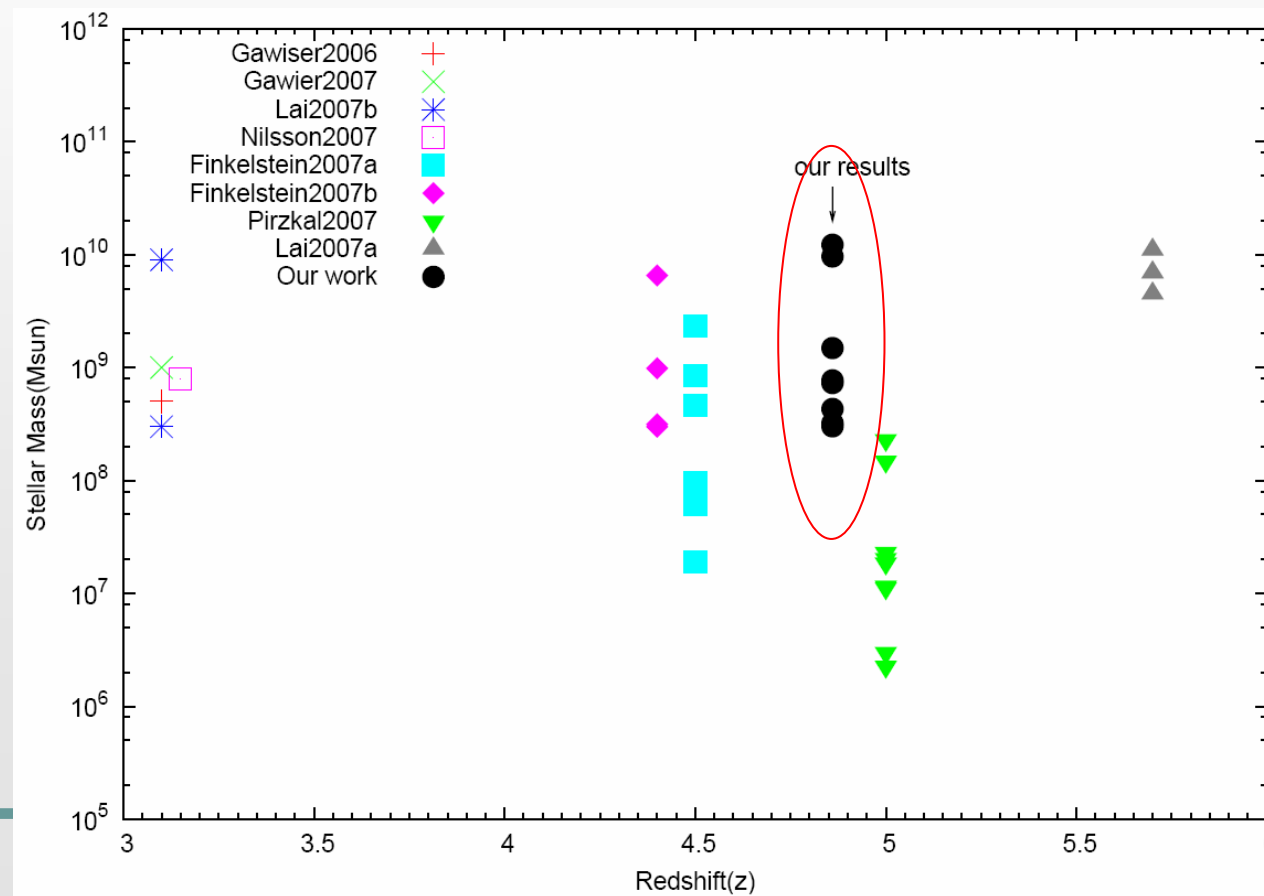
Discussion

- Comparison to LAEs at other redshifts
 - Plot stellar mass as a function of redshift!?



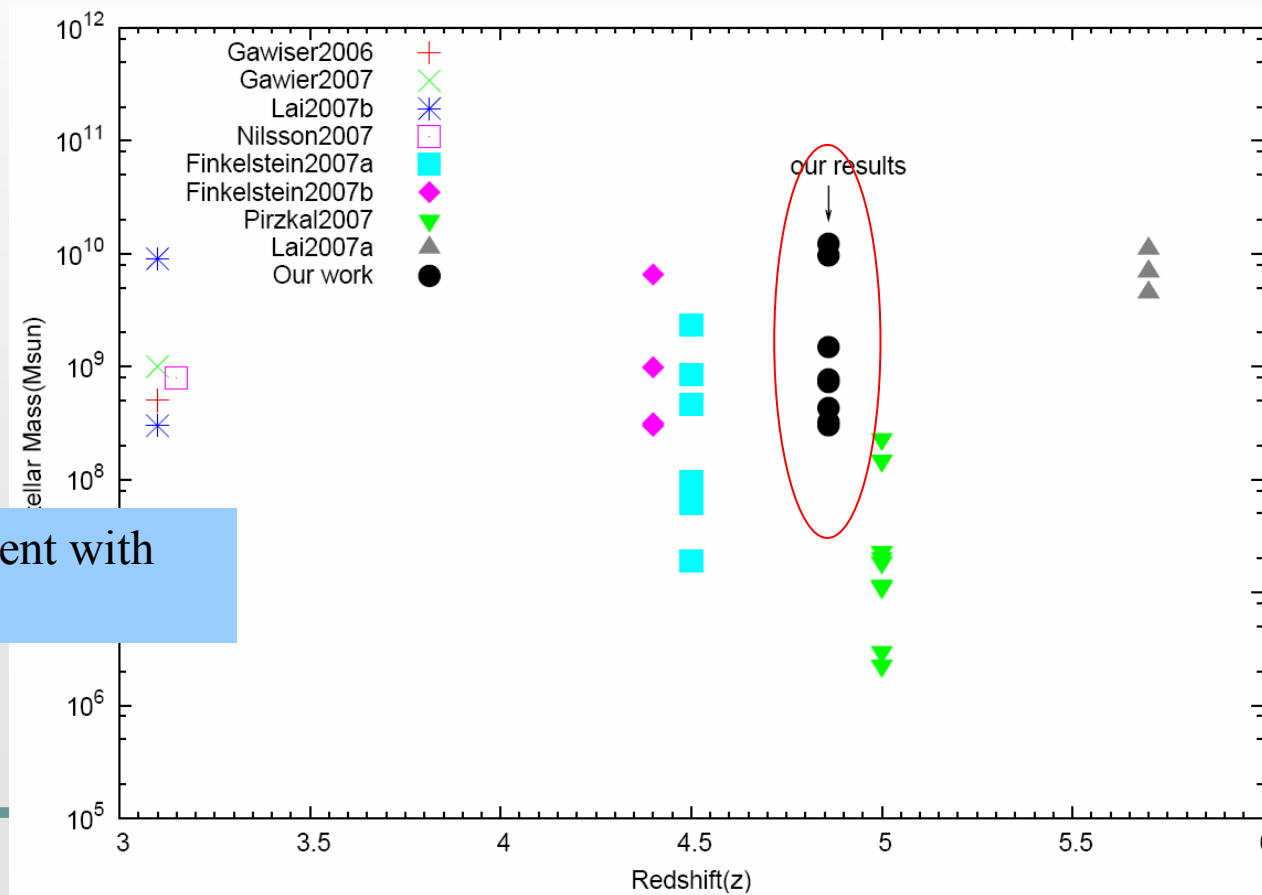
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Discussion

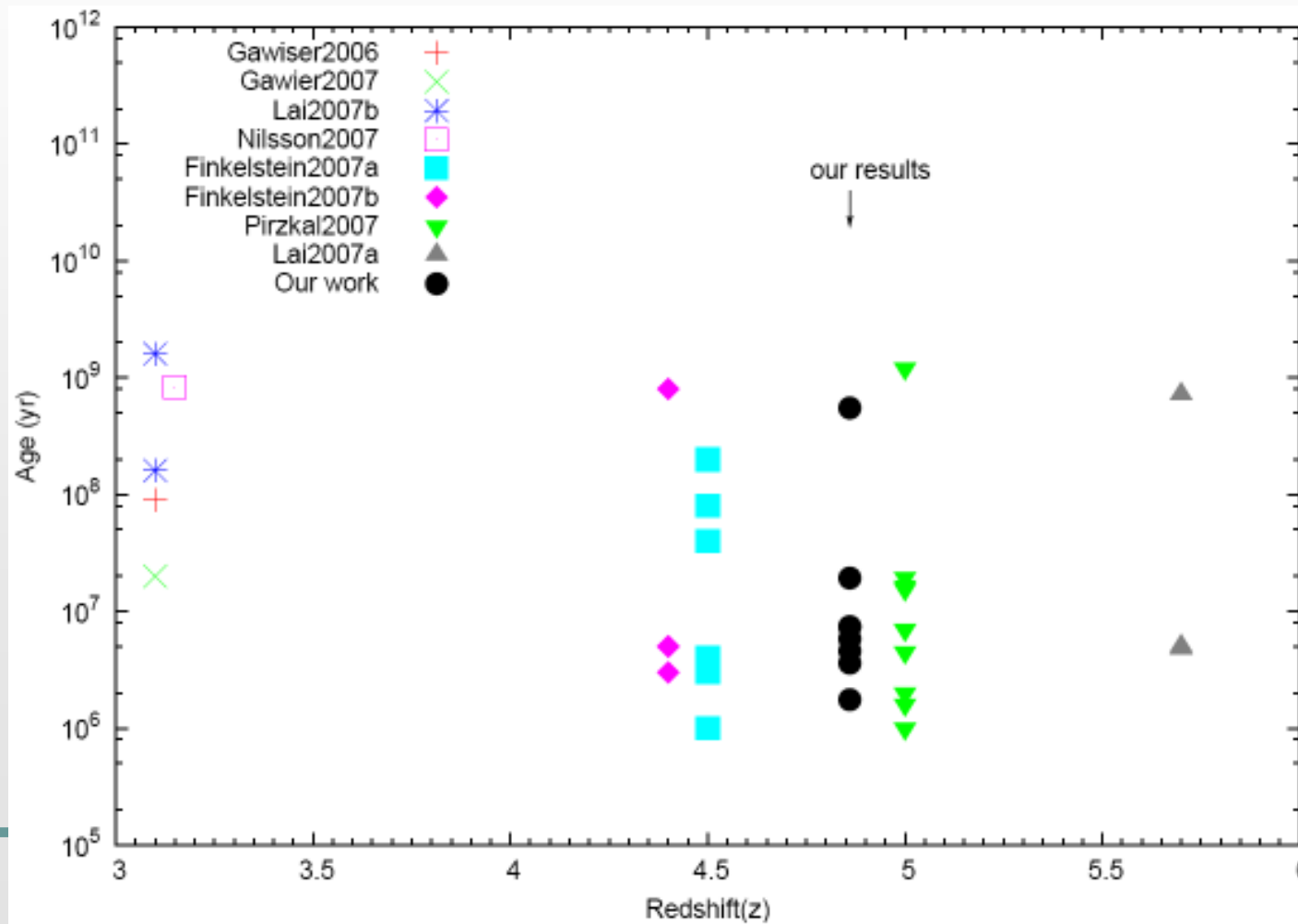
- Comparison to LAEs at other redshifts
 - Plot stellar mass as a function of redshift!?



•Broadly consistent with those by others

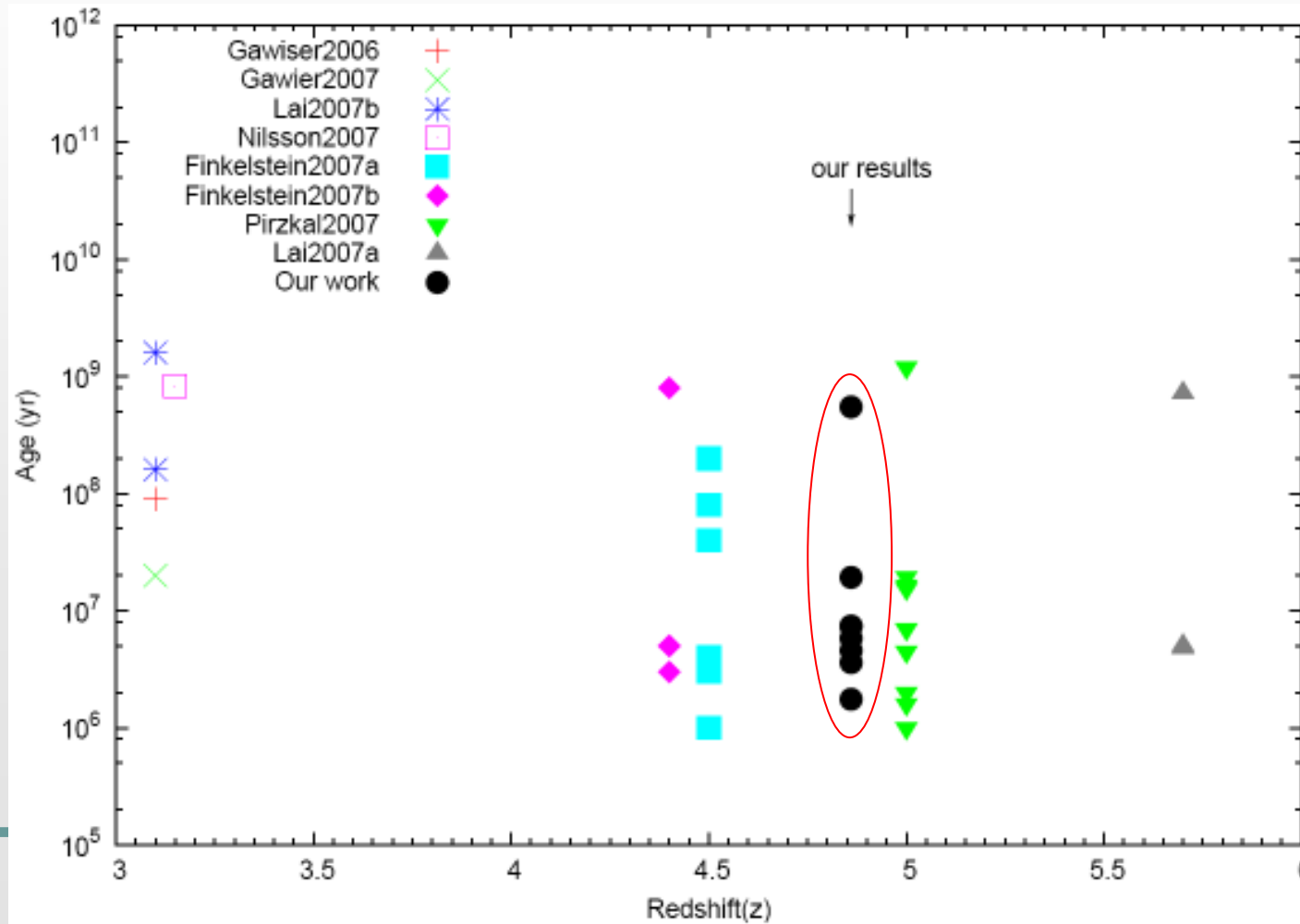
Discussion (con.)

- Age of LAEs at various redshifts



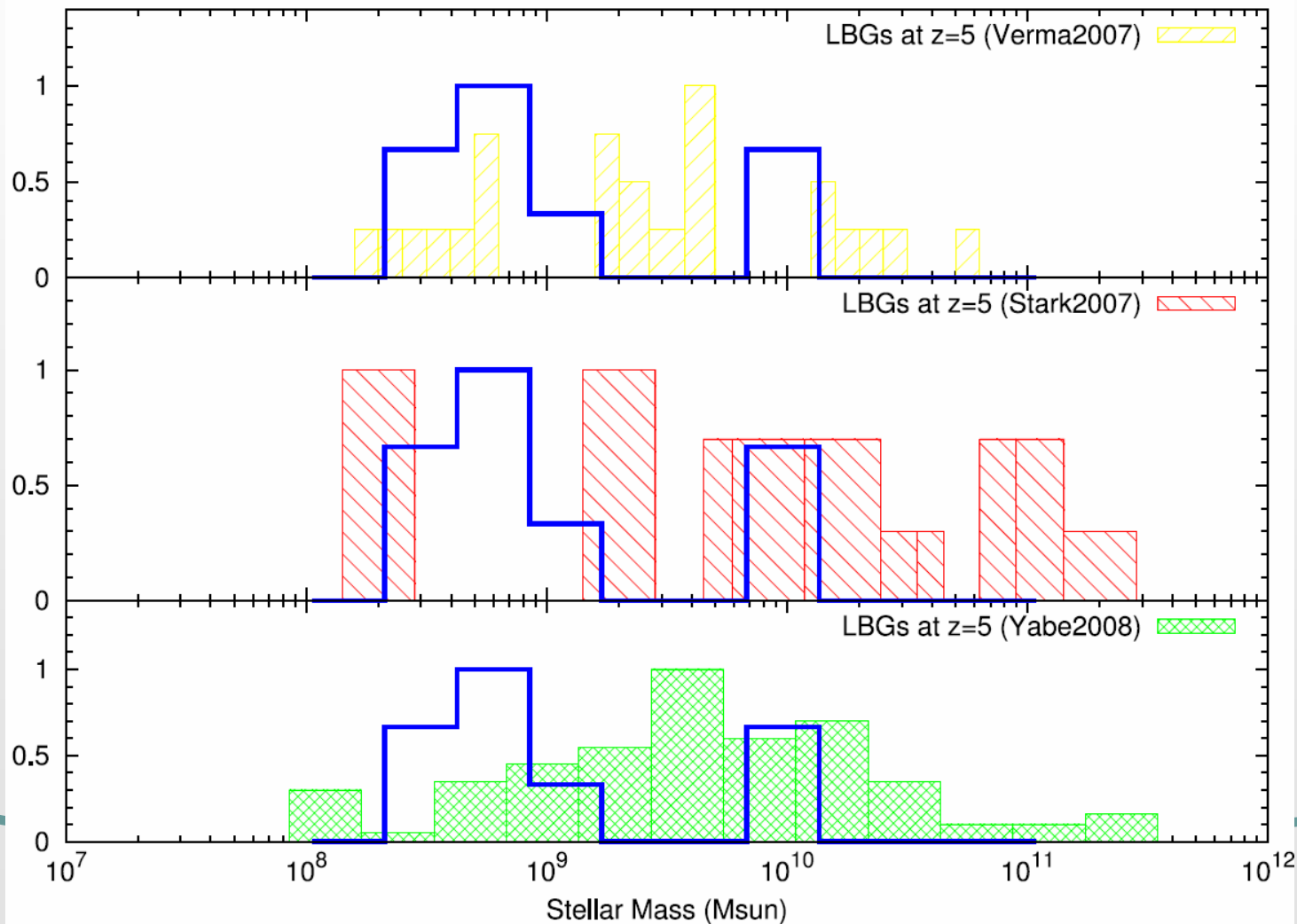
Discussion (con.)

- Age of LAEs at various redshifts



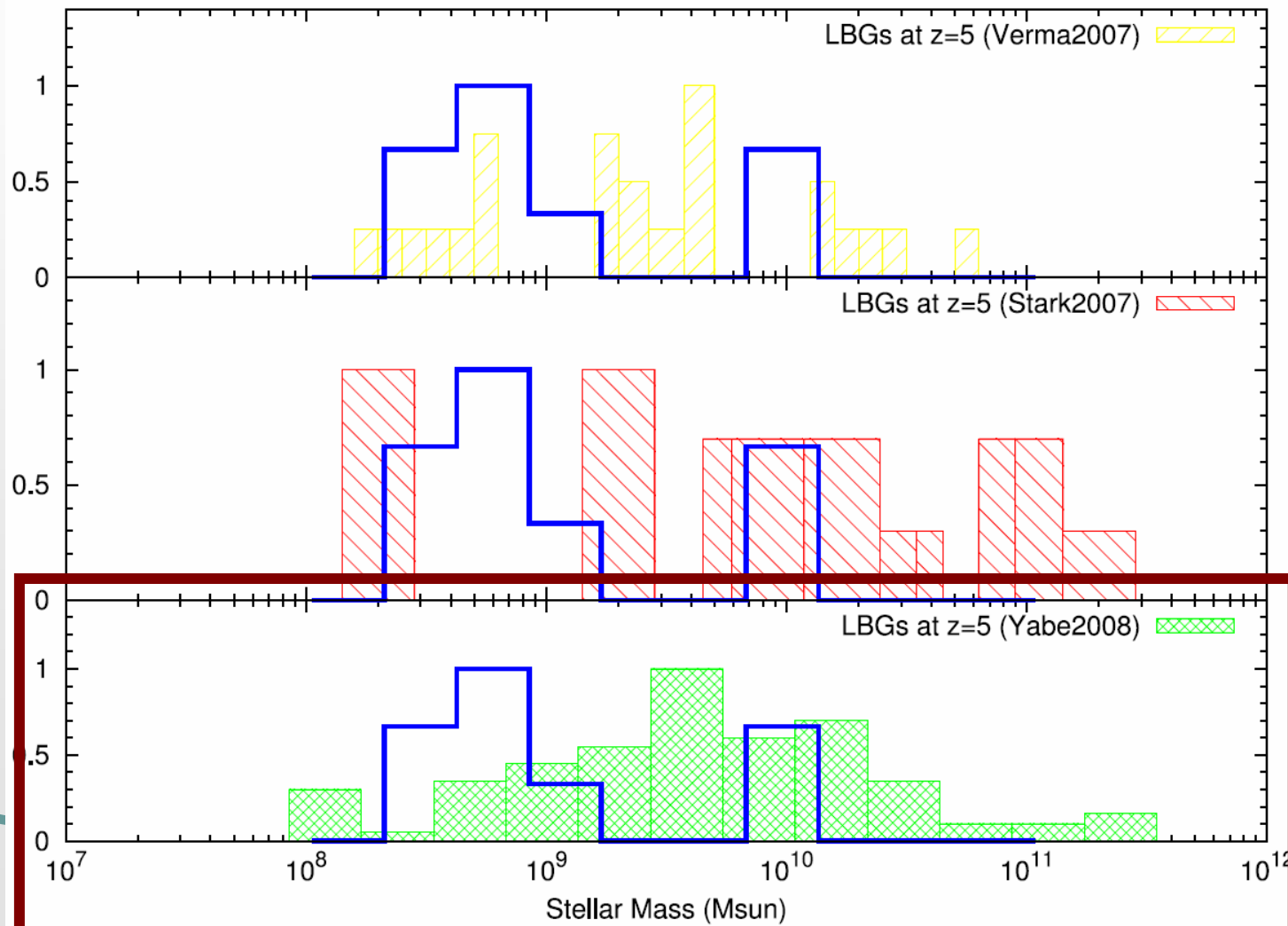
Discussion (con.)

- Stellar Mass Comparison to LBGs at $z \sim 5$



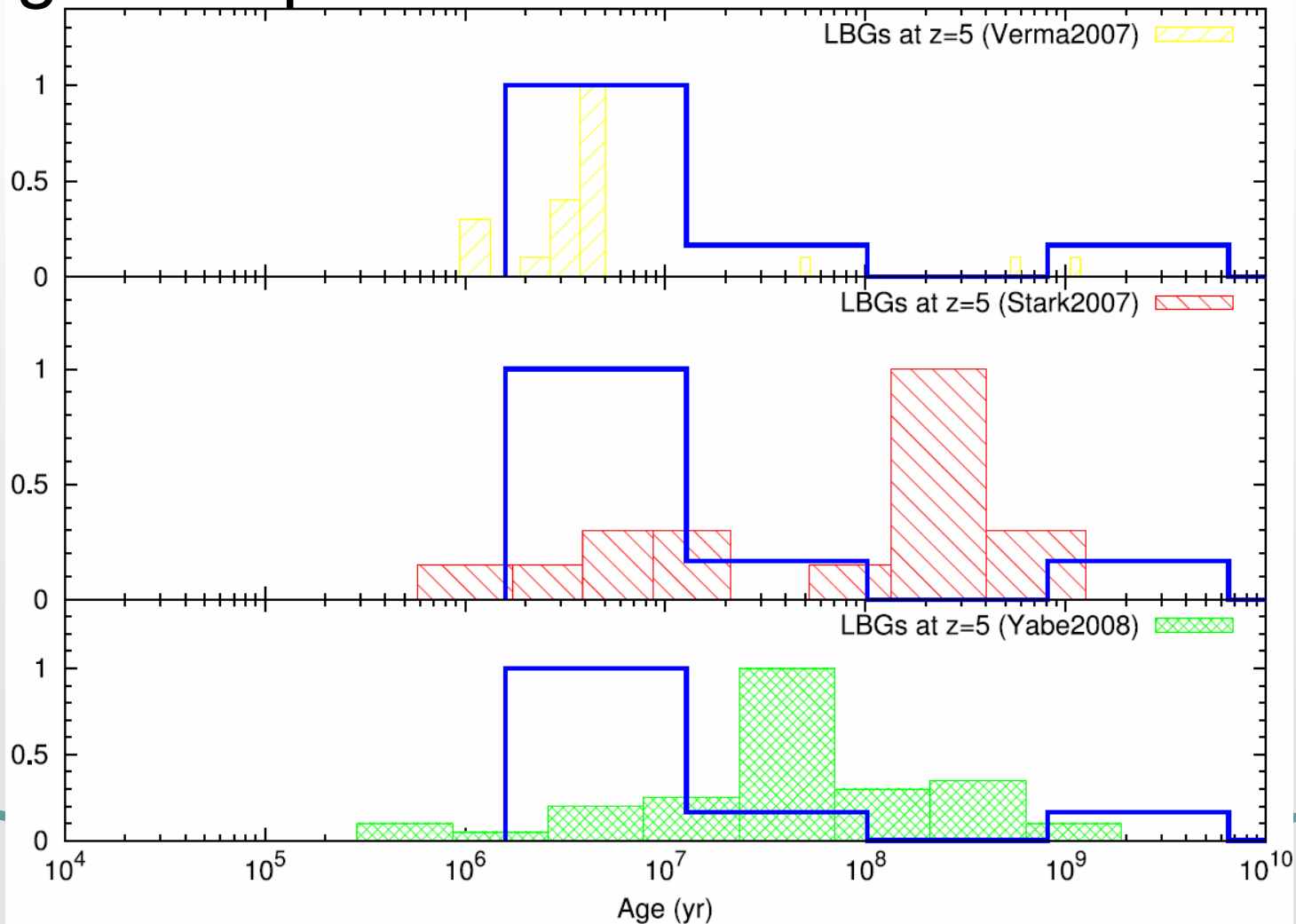
Discussion (con.)

- Stellar Mass Comparison to LBGs at $z \sim 5$



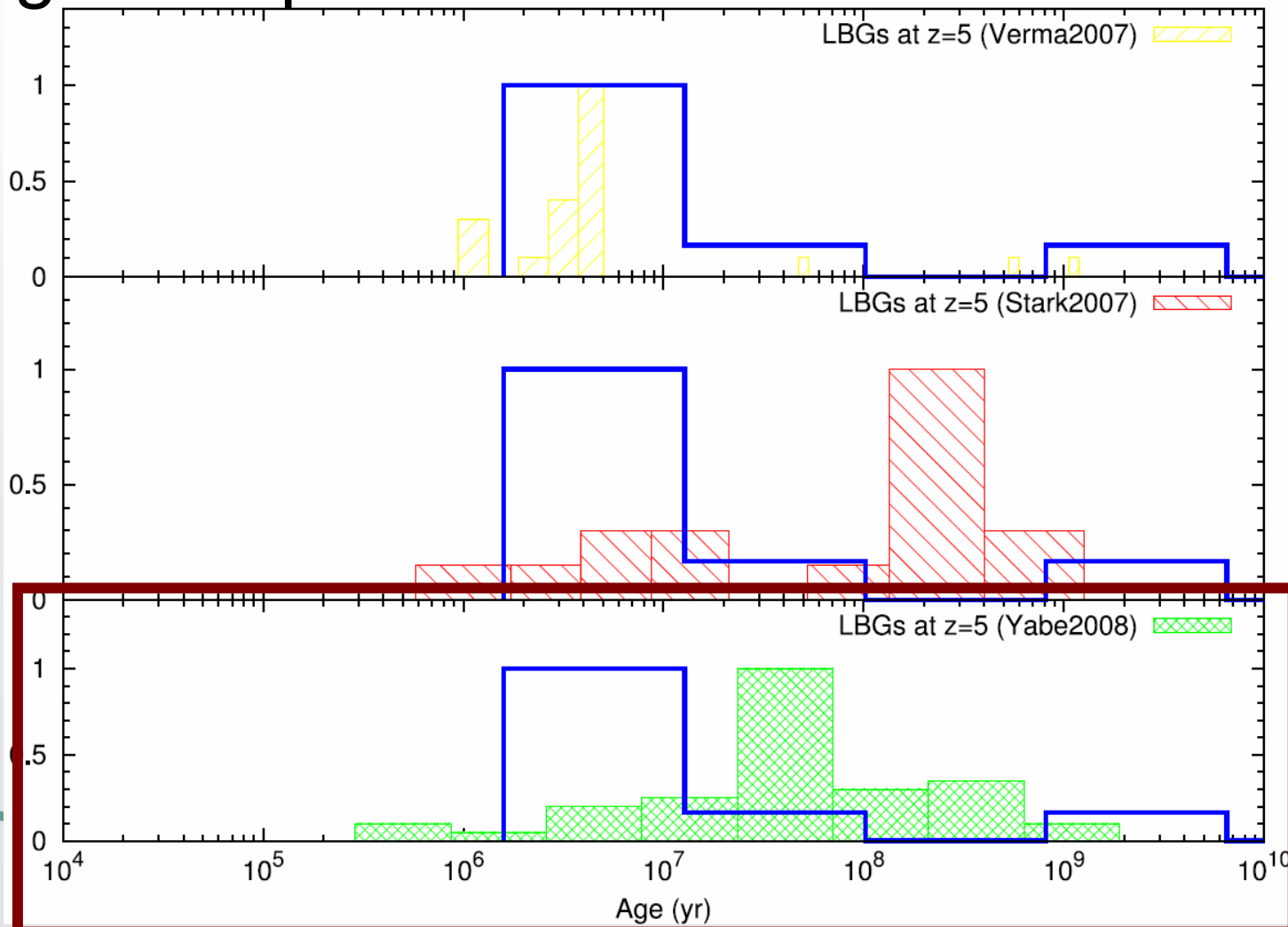
Discussion (con.)

- Age Comparison to LBGs at $z \sim 5$



Discussion (con.)

- Age Comparison to LBGs at $z \sim 5$



Summary

- Study stellar populations of 8 LAEs at $z=4.8$ by SED fitting method
- Median stellar mass of $7.5 \times 10^8 M_{\odot}$
- Median Age of 7.4 Myr
- Comparable to those of other LAEs
- But less than those of LBGs at $z \sim 5$

LAEs are young galaxy populations with medium masses.

The End!

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