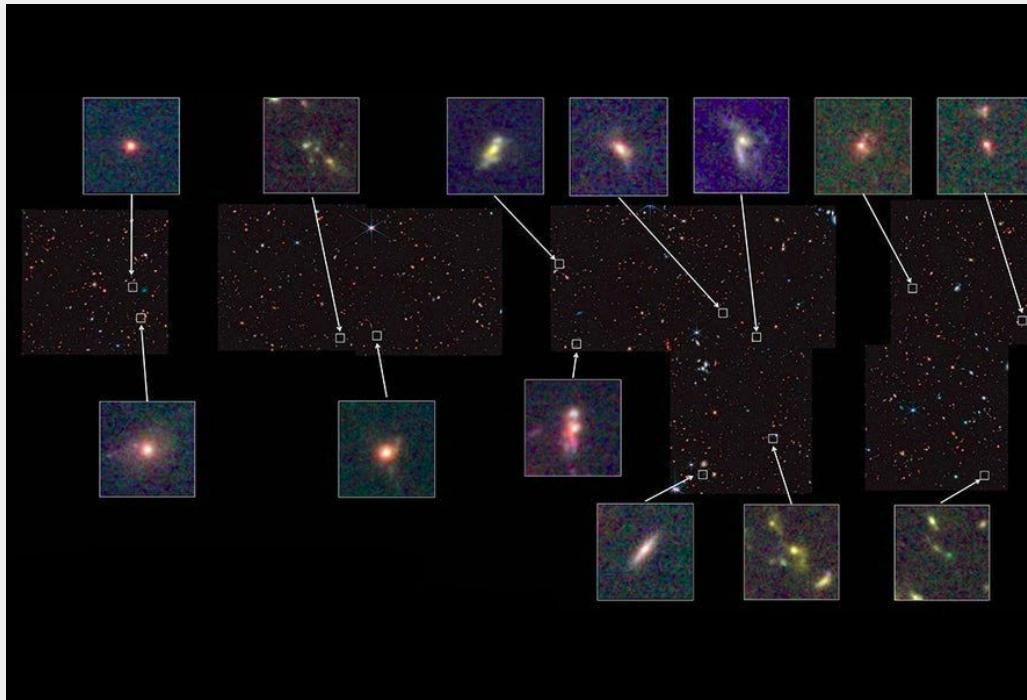


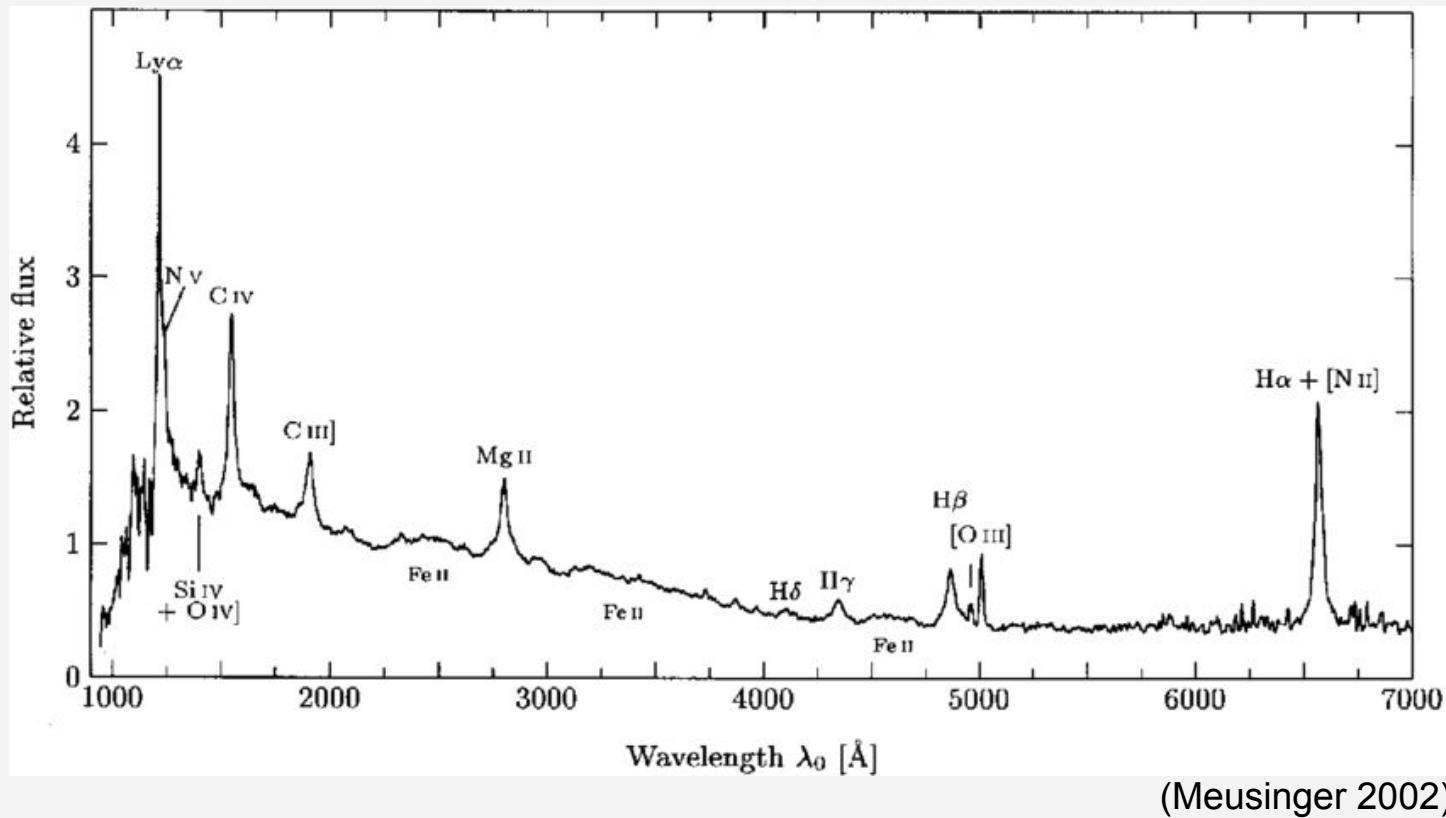
High Redshift Galaxies

- Clumpy
- Compact
- Bluer
- Dominated by young stellar population
- Prominent Emission lines in Spectra



(Curtis-Lake et. al. 2023)

Spectra of emission line galaxy

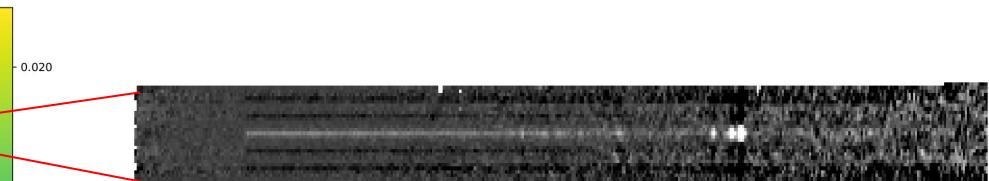
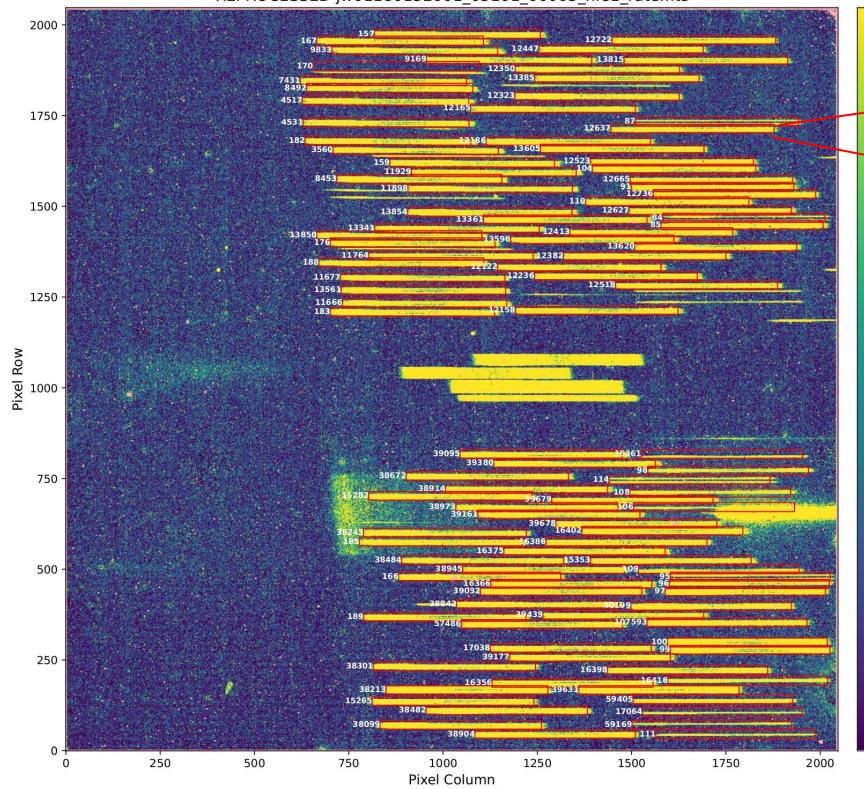


(Meusinger 2002)

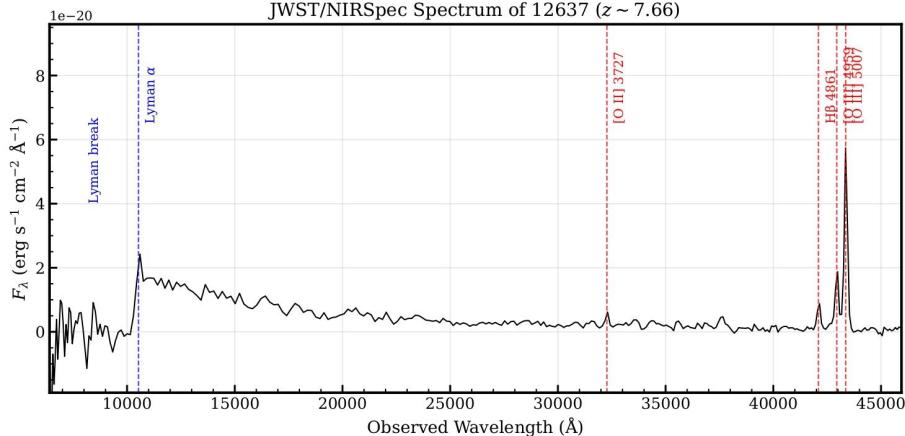
Table 1. Observed LAE properties.

ID	JADES source name	z_{spec}	M_{UV} (mag)	β_{UV}	$\text{EW}_{\text{Ly}\alpha}$ (Å)	$\Delta v_{\text{Ly}\alpha}$ (km s $^{-1}$)	$f_{\text{esc,Ly}\alpha}$
10056849	JADES-GS+53.11351-27.77284	5.814	-18.14 ± 0.04	-2.49 ± 0.04	97 ± 15	215	0.29 ± 0.04
19606	JADES-GS+53.17655-27.77111 ^(*)	5.889	-18.61 ± 0.03	-2.70 ± 0.06	89 ± 11	53 ^(**)	0.36 ± 0.03
9365	JADES-GS+53.16280-27.76084 ^(*)	5.917	-19.37 ± 0.01	-2.52 ± 0.09	118 ± 28	180	0.28 ± 0.04
9422	JADES-GS+53.12175-27.79763	5.937	-19.80 ± 0.01	-2.33 ± 0.04	124 ± 15	175	0.26 ± 0.01
6002	JADES-GS+53.11041-27.80892	5.937	-18.72 ± 0.04	-2.59 ± 0.01	50.5 ± 5.8	170	0.35 ± 0.04
19342	JADES-GS+53.16062-27.77161 ^(*)	5.974	-18.55 ± 0.05	-2.75 ± 0.04	49.9 ± 9.6	279	0.24 ± 0.04
17138	JADES-GS+53.08604-27.74760	6.204	-19.34 ± 0.04	-2.26 ± 0.54	94 ± 41	0	0.40 ± 0.10
58850	JADES-GS+53.09517-27.76061	6.263	-19.82 ± 0.03	-1.93 ± 0.06	16.3 ± 3.9	230	0.07 ± 0.02
14123	JADES-GS+53.17836-27.80098 ^(*)	6.327	-19.20 ± 0.03	-2.26 ± 0.21	150 ± 100	106	0.35 ± 0.07
18846	JADES-GS+53.13492-27.77271	6.336	-19.90 ± 0.01	-2.43 ± 0.01	44.2 ± 1.7	114	0.26 ± 0.01
13607	JADES-GS+53.13743-27.76519	6.622	-19.37 ± 0.02	-1.79 ± 0.29	33 ± 11	128	0.26 ± 0.08
16625	JADES-GS+53.16904-27.77884 ^(*)	6.631	-18.60 ± 0.04	-2.59 ± 0.02	51.0 ± 7.4	242	0.14 ± 0.02
4297	JADES-GS+53.15579-27.81520	6.712	-18.48 ± 0.04	-2.39 ± 0.09	106 ± 23	153	0.55 ± 0.04
15362	JADES-GS+53.11634-27.76194	6.794	-18.86 ± 0.26	-2.14 ± 0.15	50 ± 28	27	0.20 ± 0.07
10013682	JADES-GS+53.16746-27.77201 ^(†)	7.276	-16.86 ± 0.28	-2.17 ± 0.60	337 ± 175	178	0.67 ± 0.18
12637	JADES-GS+53.13347-27.76037 ^(‡)	7.66	-20.59 ± 0.07	-2.20 ± 0.02	24.0 ± 1.9	131	0.15 ± 0.01
21842	JADES-GS+53.15682-27.76716	7.98	-18.80 ± 0.06	-2.52 ± 0.03	29.2 ± 3.3	84	0.09 ± 0.01

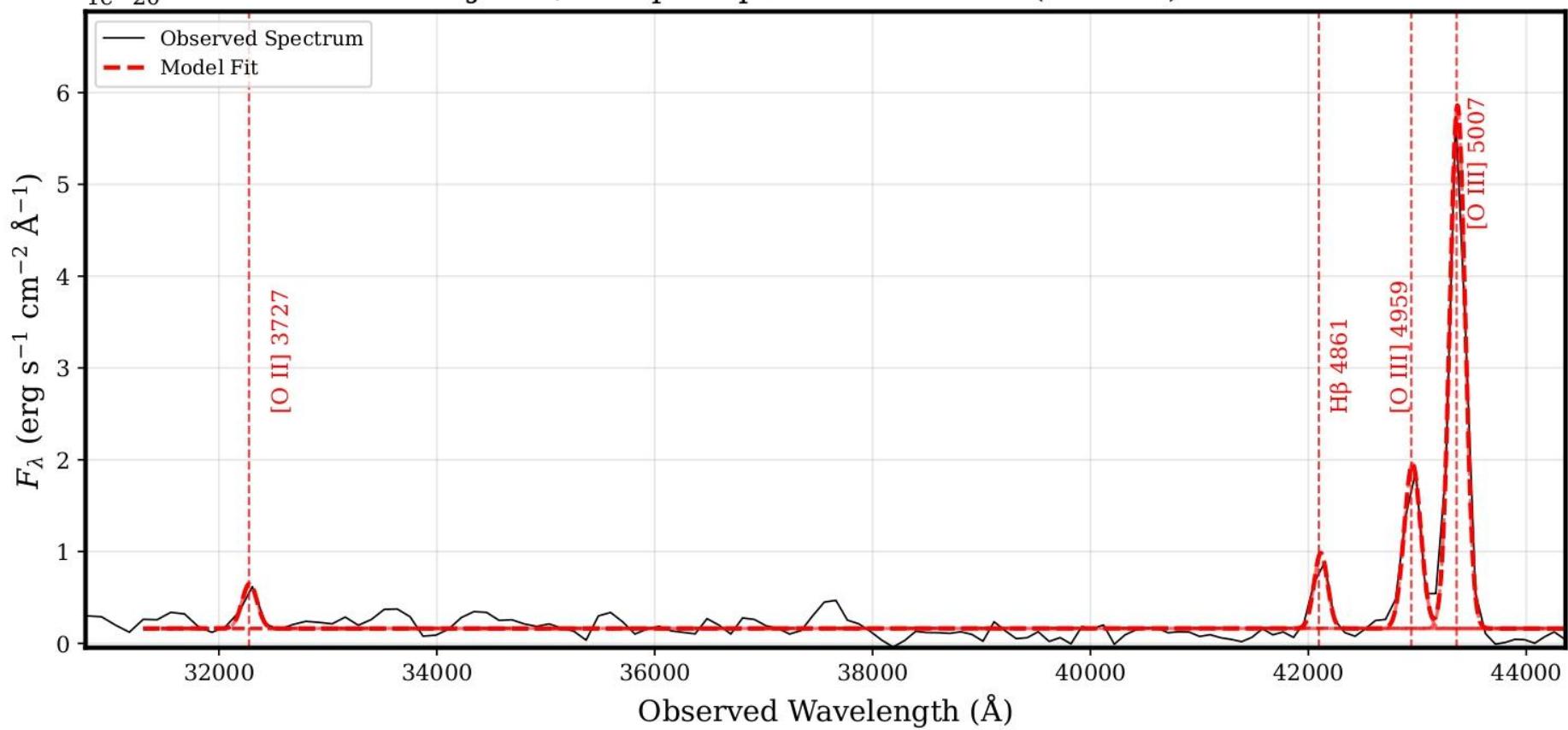
REPROCESSED jw01180132001_05101_00003_nrs1_rate.fits



JWST/NIRSpec Spectrum of 12637 ($z \sim 7.66$)



JWST/NIRSpec Spectrum of 12637 ($z \sim 7.66$)



Properties derived from the spectral fitting

[O II] 3727 Flux = 8.4e-19 erg/s/cm²

Metallicity: $12 + \log(\text{O/H}) \approx 8.19$

H β Flux = 1.2e-18 erg/s/cm²

[O III]5007 EW_{rest} ≈ 716.5 Å

[O III] 4959 Flux = 3.3e-18 erg/s/cm²

[O III] 5007 Flux = 1.0e-17 erg/s/cm²

Ionizing Photon Production Efficiency (ξ_{ion})

[O III]/[O II] (O32) = 15.86

$\log \xi_{\text{ion}}$ (from OIII EW) ≈ 25.14

[O III]5007 / H β = 7.8