feasiBGS: BGS spectroscopic simulations

updates

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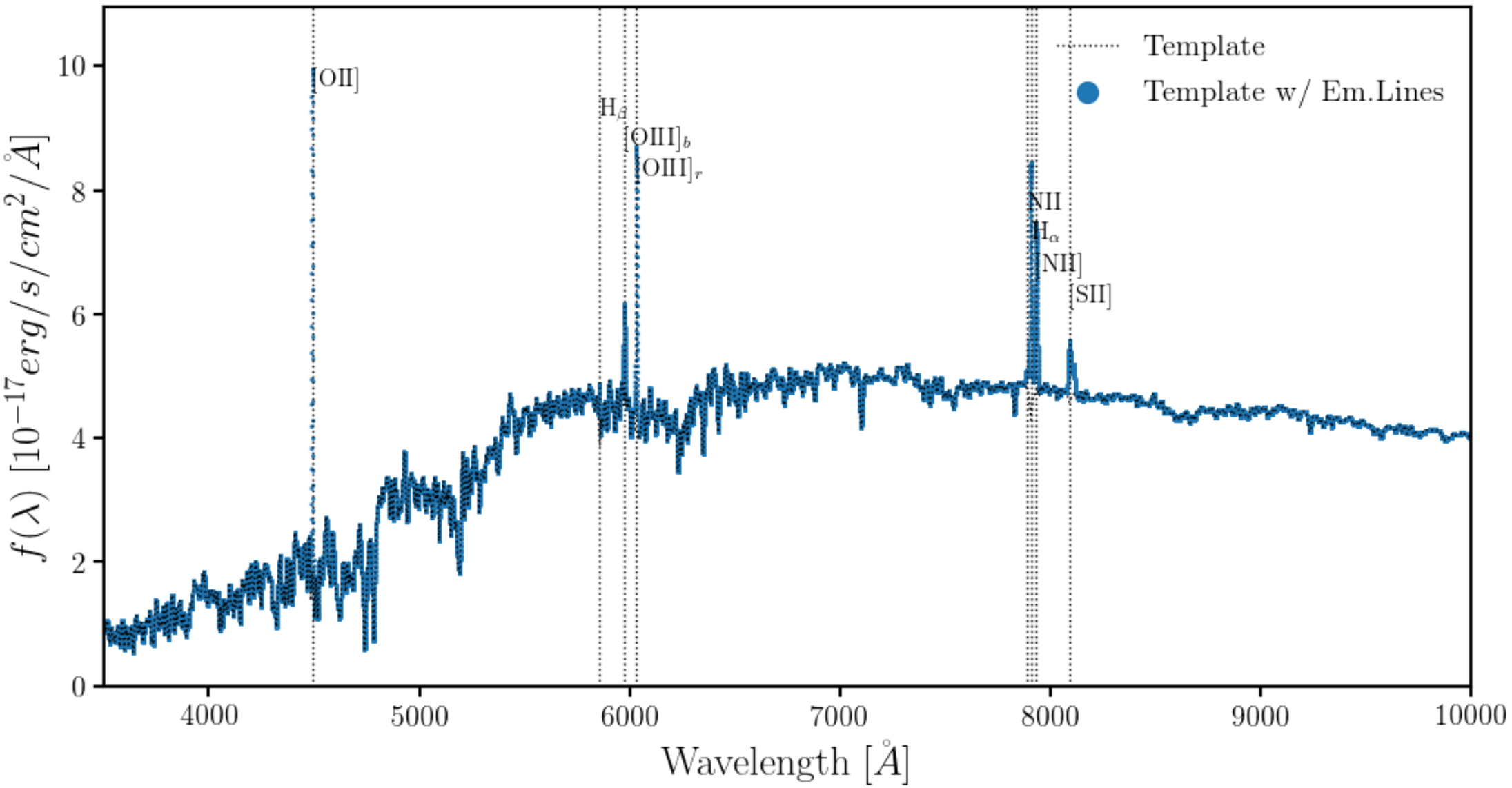
source spectra flux normalization

source spectra from desisim templates and GAMA data



source spectra from desisim templates and GAMA data

$$s(\lambda) = c(\lambda) + e(\lambda)$$

continuum from desisim BGS templates

GAMA DR3 emission line fluxes

before matching $s(\lambda)$ DECaLS r band 1" aperture flux we need to account for…

GAMA spectrophotometric calibration *is determined so that*

flux of spectrum integrated over the SDSS filter curve = SDSS petrosian magnitude

$$s(\lambda) = c(\lambda) + e(\lambda)$$

emission line fluxes from GAMA spectra

$$s'(\lambda) = f \times c(\lambda) + e(\lambda)$$

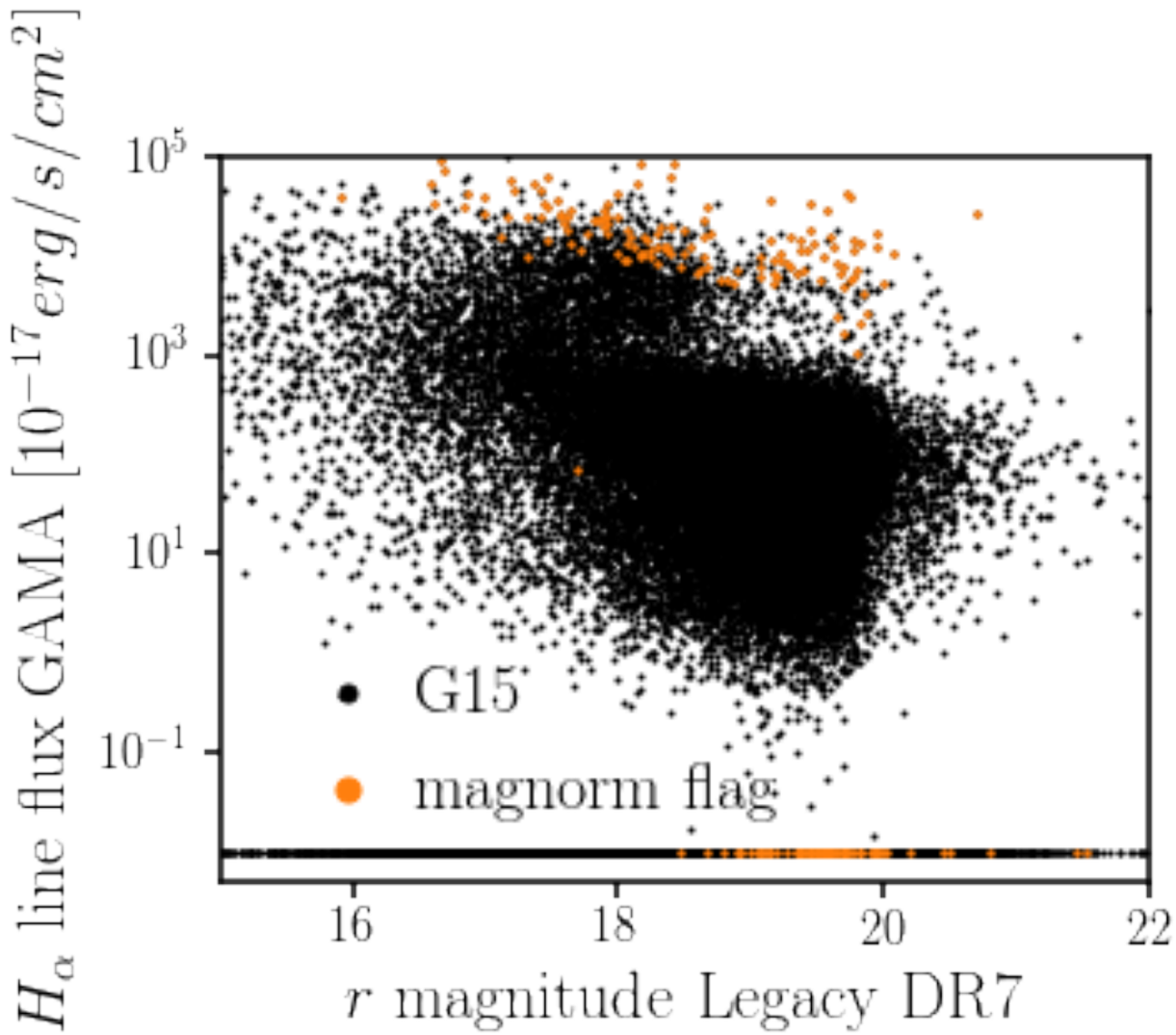
has to be consistently calibrated

then match $s'(\lambda)$ *to DECaLS r band 1" aperture flux*

Hopkins et al. (2013)

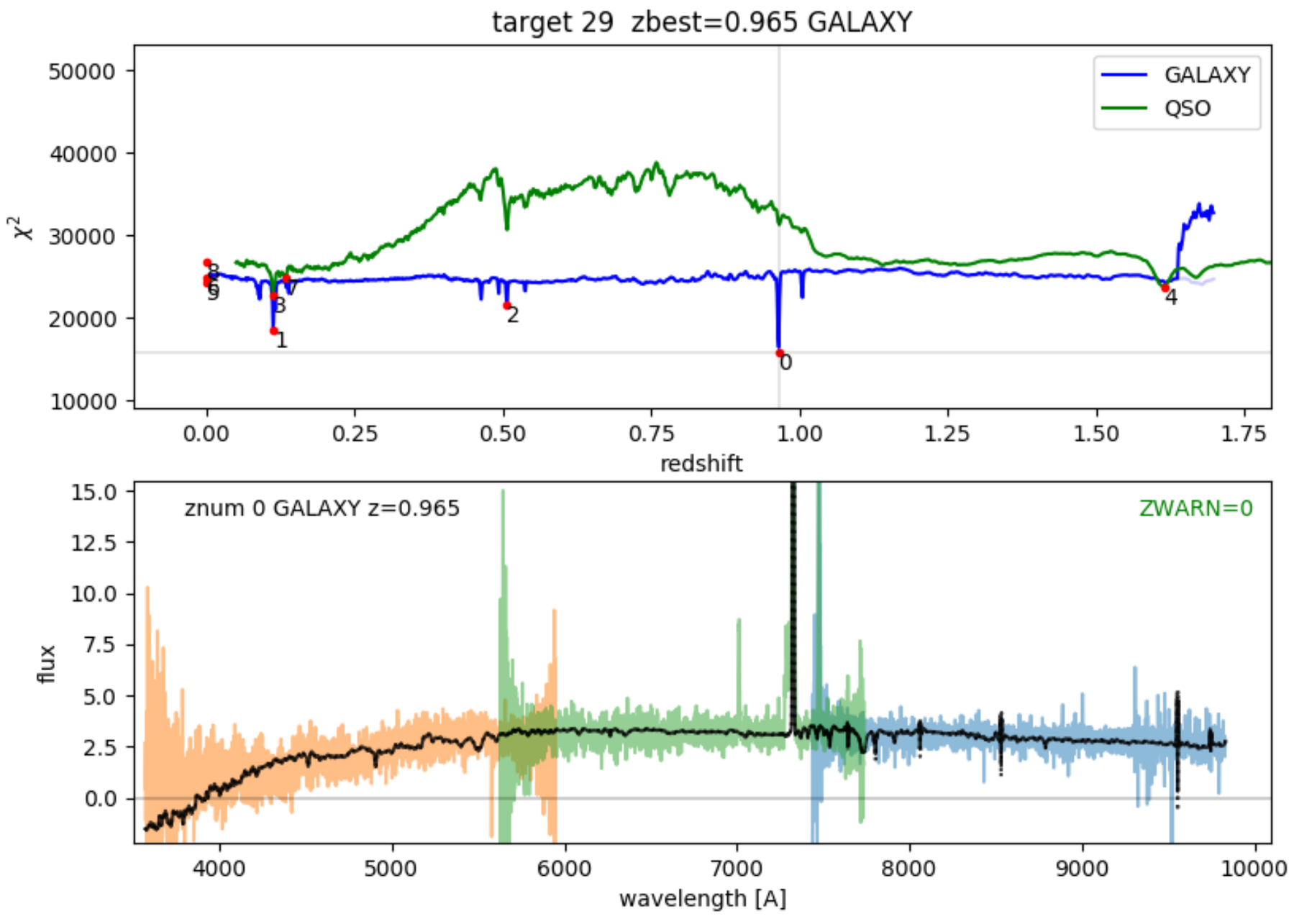
emission line flux too bright for ~0.34% GAMA objects

($e(\lambda)$ integrated over the SDSS r-band filter curve) > (SDSS r magnitude)

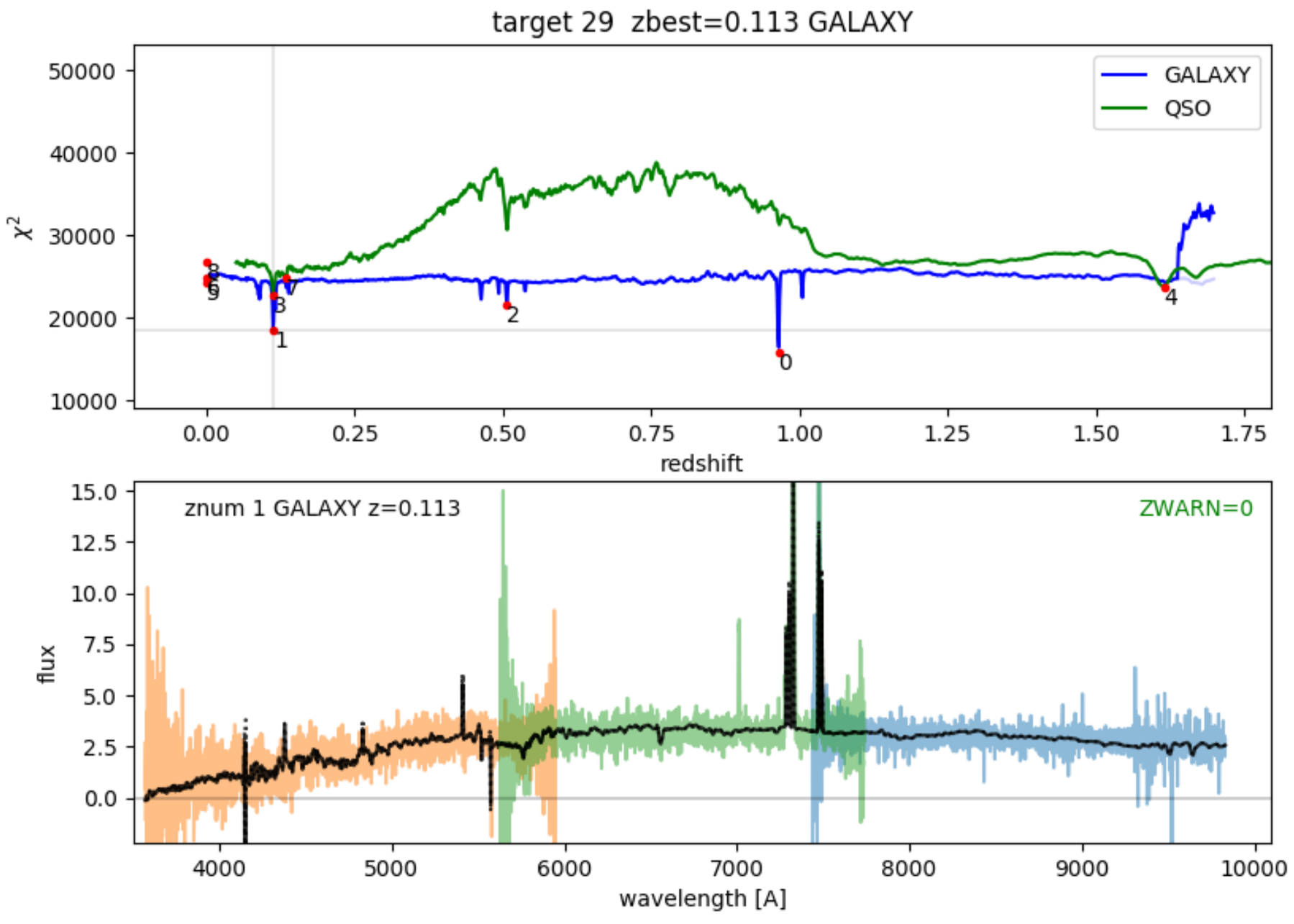


redrock redshift failures on "easy" targets

redrock fails for bright galaxies with strong Hα

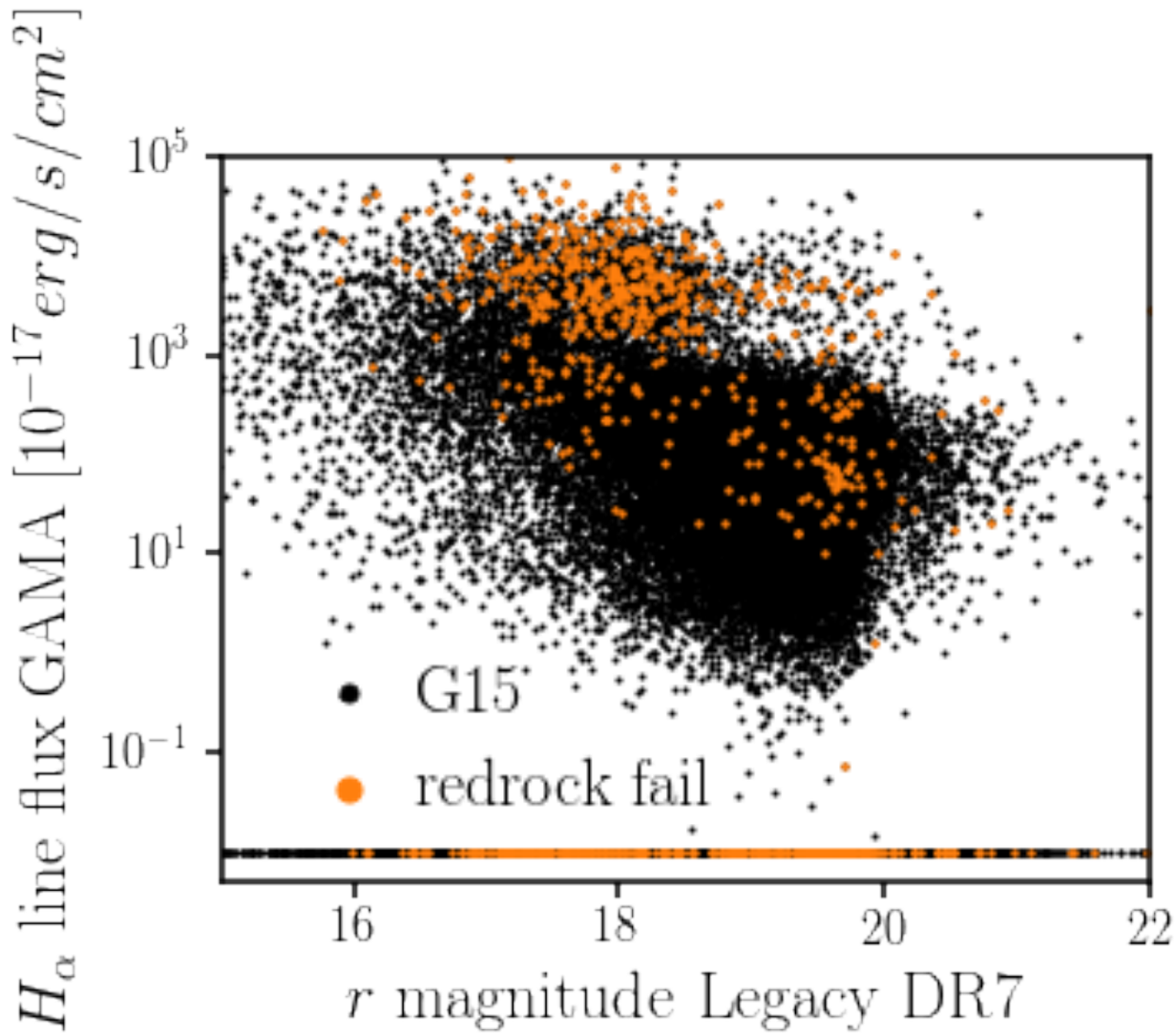


redrock fails for bright galaxies with strong Hα

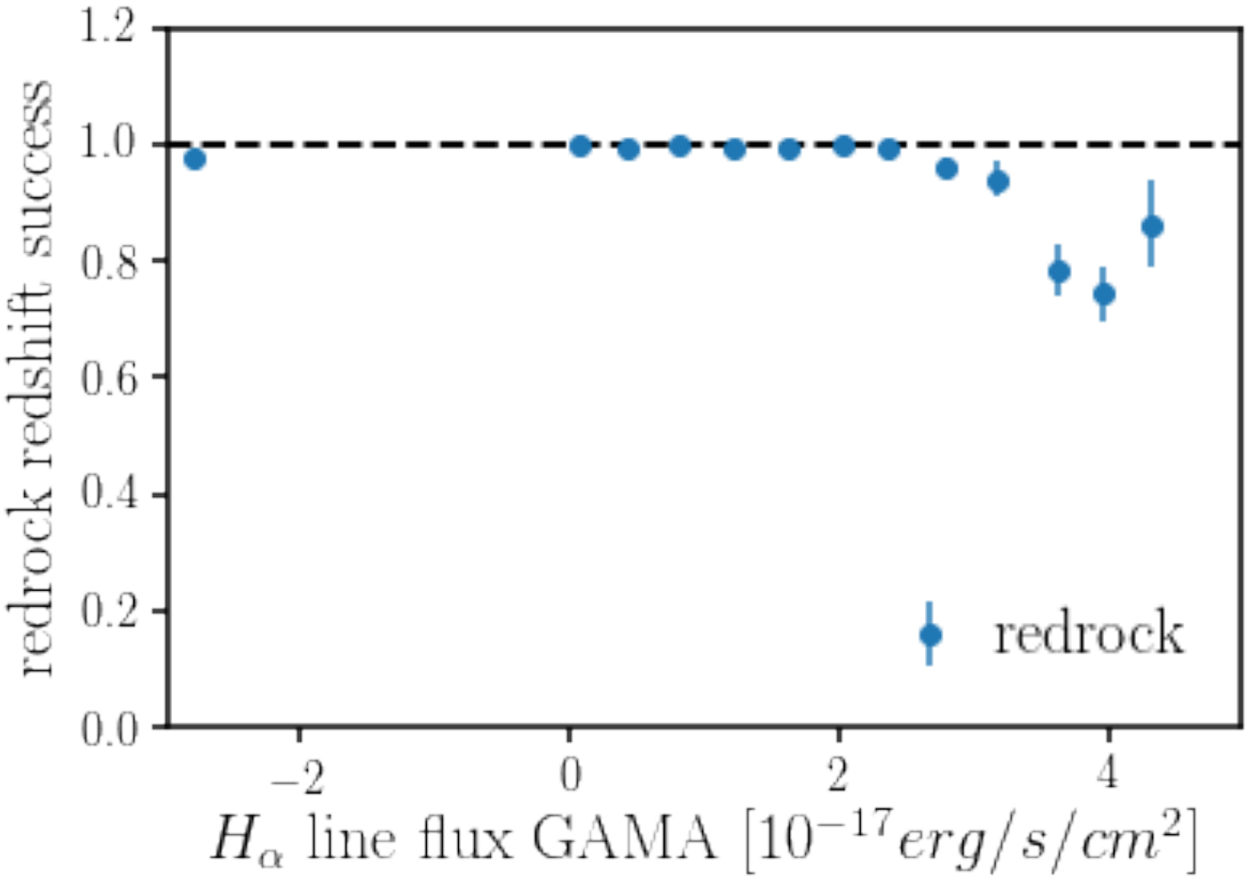


redrock fails for bright galaxies with strong Hα

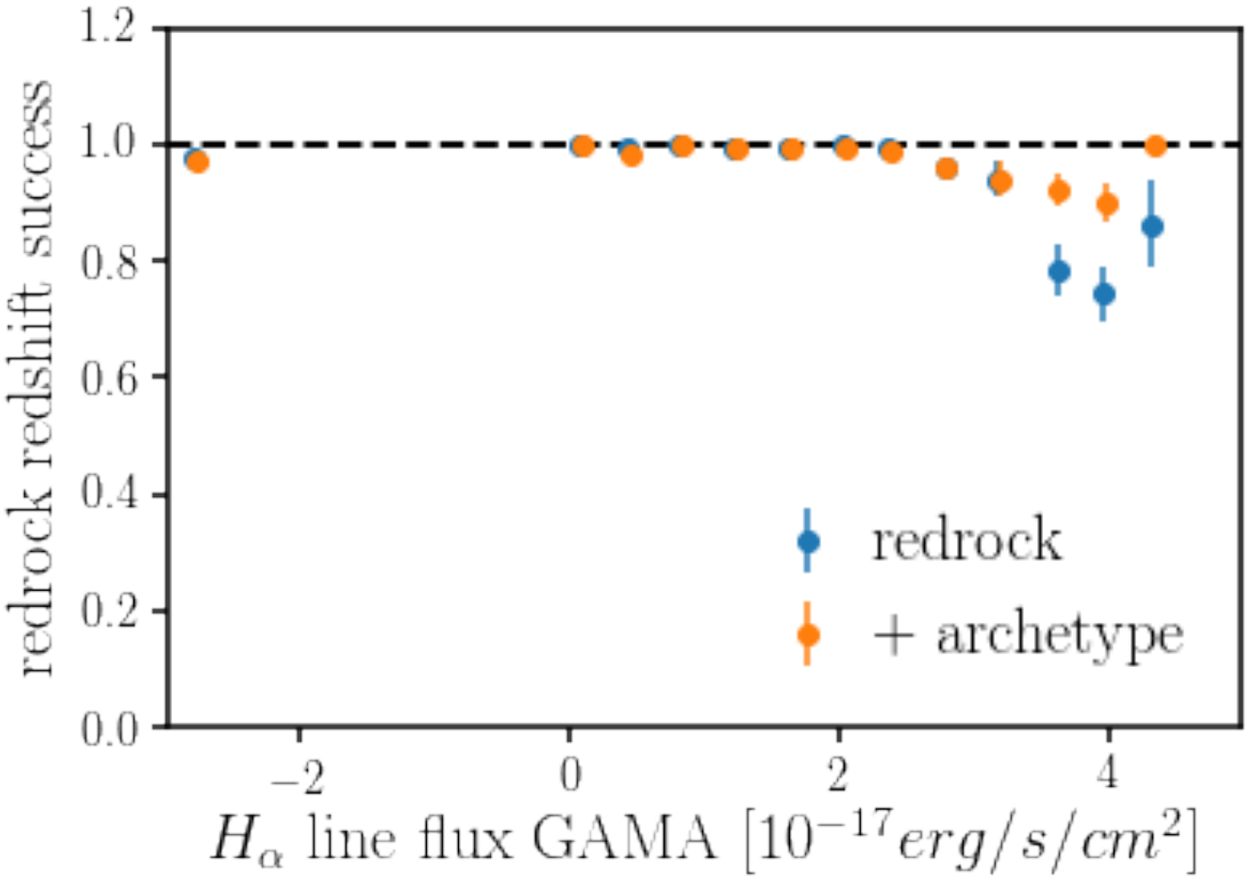
redrock fail = $\dfrac{|z_{\rm redrock} - z_{\rm true}|}{1 + z_{\rm true}} < 0.003$ *and ZWARN = 0*



redrock fails for bright galaxies with strong Hα



redrock +archetype improves success rate *but there's still room for improvement*



redrock+archetype takes ~3x longer

https://github.com/changhoonhahn/feasiBGS