Lyman Alpha Tomography

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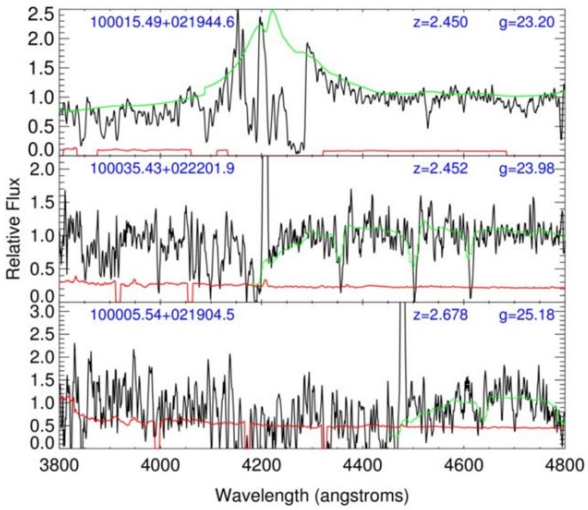

Figure 1: Example Spectra from the CLAMATO Survey. *Top:* Quasars, *Middle/Bottom:* Lyman Break Galaxies

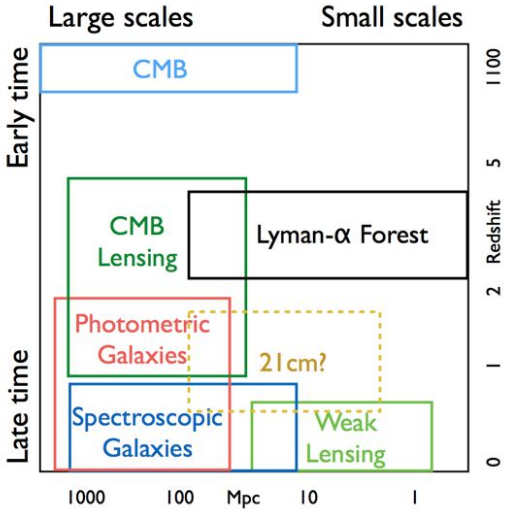

Figure 2: Lyman Alpha probes small scales at high redshift. (Font-Ribera)

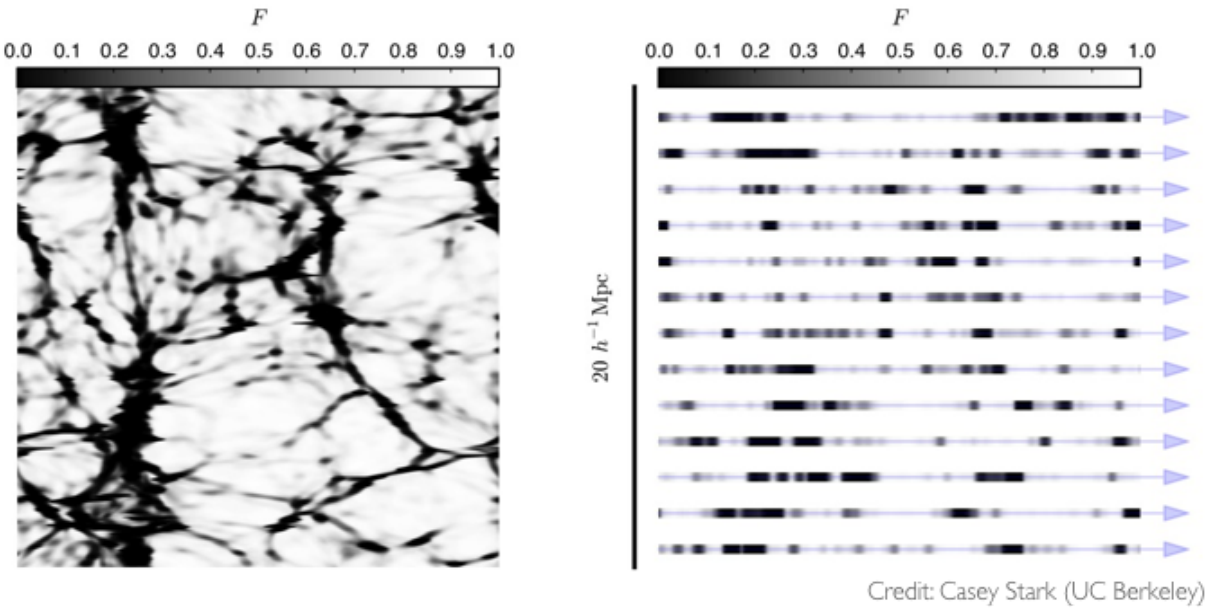

Figure 3: Lyman Alpha Tomography can use densely spaced sightlines to trace large scale structure. Can “connect the dots” between spatially nearby lines of sight.

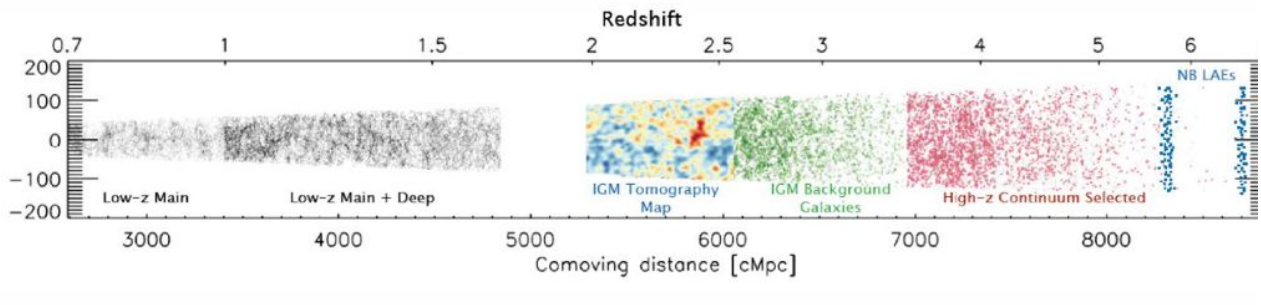

Figure 4: Plan for the Prime Focus Spectrograph, can trace cosmic web in LyA absorption with background galaxies at 2.5<z<3.0 at comparable sampling to CLAMATO (d⊥=2.7 Mpc/h transverse separation). Also has a sample of foreground galaxies at 2.2<z<2.6 for comparison with absorption map.

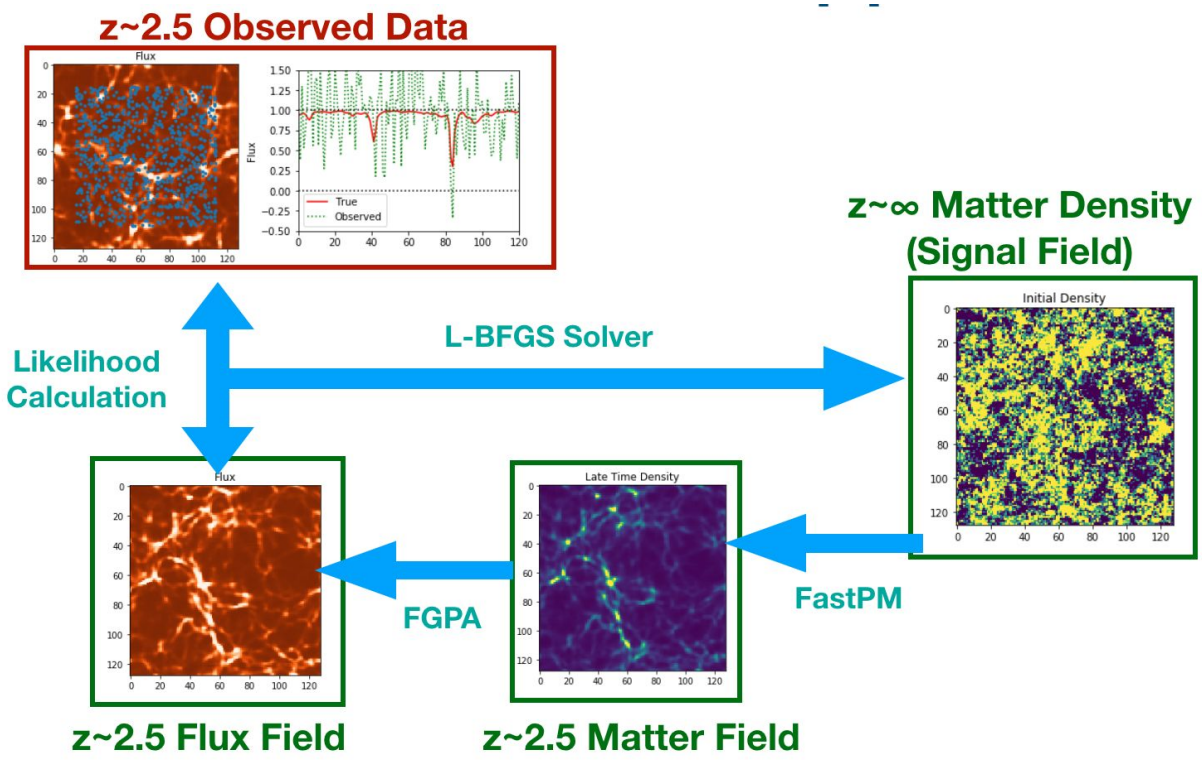

Figure 5: The Tomographic Absorption and Density Reconstruction Inference Framework (**TARDIS**); reconstruct the z~2.5 cosmic structure by optimizing over the initial density field.