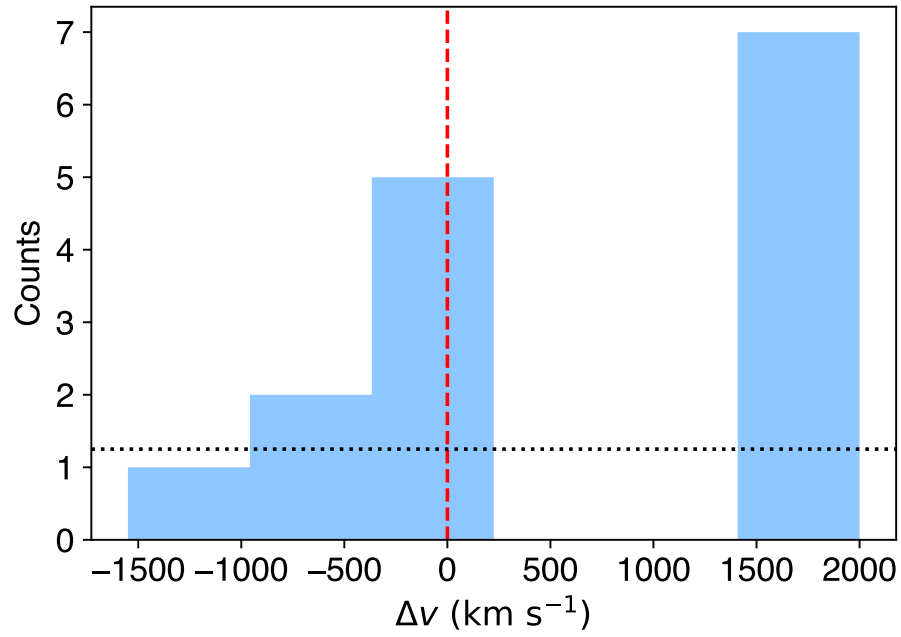
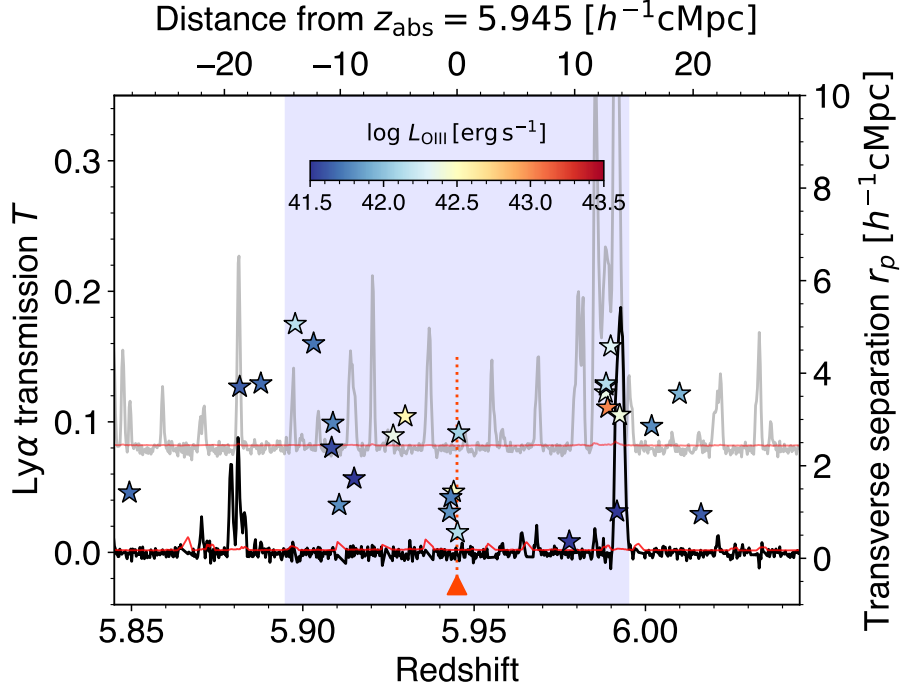

First-star imprints in a metal-poor galaxy overdensity near the end of reionization

In the format provided by the
authors and unedited

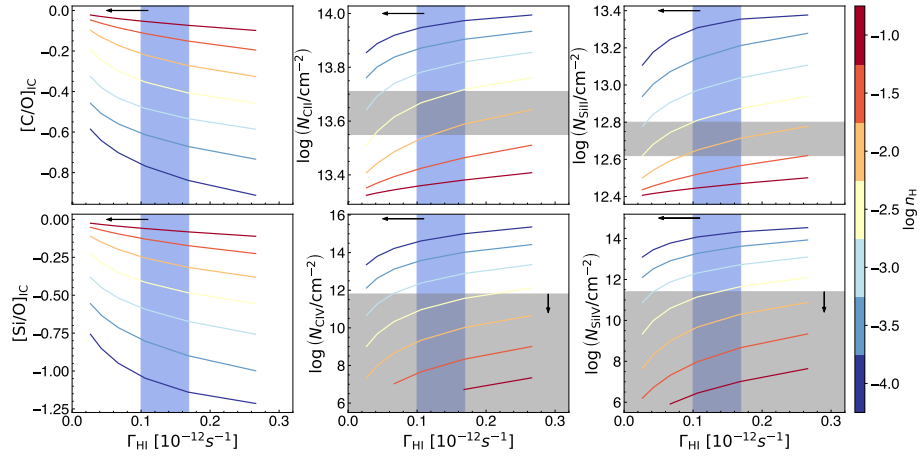
Supplementary Information



Supplementary Figure 1: **The velocity distribution of the 17 galaxies in overdensity in the J0100+2802 field.** The absorber redshift $z = 5.945$ is taken as the velocity zero point, marked by a red dashed line. The black dotted line marks the mean number density of the whole field.



Supplementary Figure 2: **Ly α and Ly β forest transmission $T = \exp(-\tau_\alpha)$ around the Pop III absorber at $z_{\text{abs}} = 5.945$.** The Ly α and Ly β forest are shown by the black and gray lines, respectively, with the uncertainty shown in red. The Ly β transmission is shifted upwards for visual clarity. The red triangle and vertical dotted line mark the redshift of the Pop III absorber. The locations of [O III] emitters relative to the absorber are marked by stars, color-coded by [O III] luminosity. The top x -axis indicates the line-of-sight comoving distance from the absorber, and the right y -axis indicates the transverse distance of [O III] emitters from the absorber. The blue-shaded region indicates the redshift interval used to calculate the [O III] clustering around the absorber.



Supplementary Figure 3: **The Cloudy model outputs at $\log(N_{\text{HI}}/\text{cm}^{-2}) = 19.15$.** The first column shows the ionization correction for $[\text{C}/\text{O}]$ and $[\text{Si}/\text{O}]$; the second and third columns show the predicted column densities for CII , CIV , SiII , and SiIV . The lines represent different models, color-coded by hydrogen density $\log n_{\text{H}}$. The 1σ interval of the observed column densities for CII and SiII are marked by gray shadows, and the 3σ upper limits for CIV and SiIV are marked by gray shadows with a black arrow. The Γ_{HI} estimated within the redshift interval $z \pm 0.05$ is indicated by blue vertical shaded regions, while the 5σ upper limits measured within the mean free path are denoted by black arrows pointing to the left. We note that a lower correction is needed if we adopt a higher $\log(N_{\text{HI}}) > 19.15$.