
Assessing the Ne VIII Absorber Population at $z \sim 0.8$ via Agnostic Stacking

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Abstract

We have developed 'agnostic stacking' : a novel method to characterise the intergalactic absorbing population of species with multiple transitions. It is a statistical approach at an absorption level per pixel which allows us to probe weak or confusion limited populations. The analysis framework also allows the convenient incorporation of known direct detections. We apply this novel approach to the search for Ne VIII absorption in a set of high-quality COS spectra. In this case, we are able to probe to an unprecedented low limit of $\log N > 12.3$ at $z \approx 0.8$, and can characterise for the first time the underlying NeVIII absorber population with regards to its number density and column density distribution. The inferred cosmic mass density for Ne VIII gas is significantly lower than predicted by recent simulations. We estimate the baryon density associated with this phase of the WHIM (or hot CGM) to constitute 4% of the total baryonic mass.

I will discuss the prospects for probing the absorber population of a variety of species over wide ranges of physical conditions and redshifts using this method.

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