

The thermal history of the intergalactic medium at $3.9 \leq z \leq 4.3$

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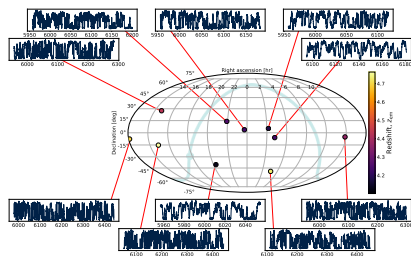
Introduction

Hui & Gnedin (1997) showed that the temperature-density relation of the photoionized IGM in the low-density region can be well-approximated by the following equation

$$T = T_0 \Delta^{\gamma-1},$$

where T_0 is the temperature at the mean density, Δ is the overdensity and $(\gamma - 1)$ is a power-law index.

Data and analysis

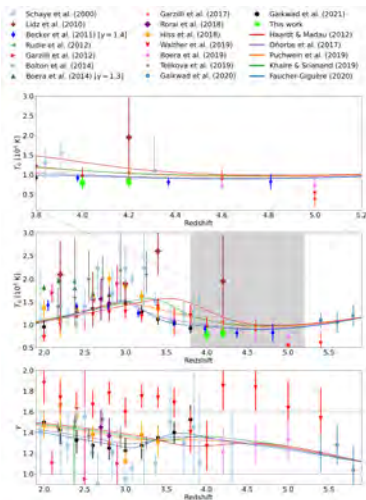


We applied the curvature method to obtain new, robust determinations of the IGM temperature at redshift range of $3.9 \leq z \leq 4.3$. The curvature κ is defined as (Becker et al., 2011)

$$\kappa \equiv \frac{F''}{[1 + (F')^2]^{3/2}},$$

where the $F' = dF/dv$ and $F'' = d^2F/dv^2$.

Results



Thank you for your attention :)