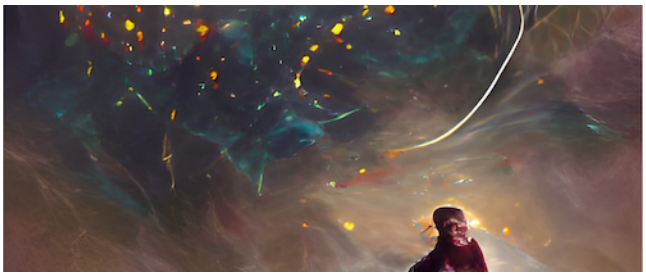

Contribution ID: **3** Type: **not specified**

Field Variation in LAE-IGM HI Correlation at Cosmic Noon Mapped by Subaru/HSC

Monday, 7 March 2022 14:45 (20 minutes)

The correlation between HI in the IGM and galaxies now attracts great interest. We have found a positive LAE-IGM HI correlation based on a 5.4 deg^2 narrowband survey targeting IGM HI overdense regions (Liang+2021). Compared with simulations, this relation provides us with an instructive probe to unveil pristine HI gas assembly and galaxy formation. However, lines-of-sight around a 17σ quasar overdensity can significantly alter this relation's trend, which addresses the possible existence of field variation. Therefore, we extend our correlation analysis to the latest z=2.2 LAE catalog surveyed over the areas of 20 deg^2 from the Subaru HSC-SSP. With this four times larger sample, we find the slope of the relation is flatter in general fields. For the first time, we confirm the LAE-IGM HI correlation on a large-scale HI environment of >100 cMpc. The LAE overdensity is more sensitive to IGM HI in regions with denser HI, except for the unique environments where clustering quasars emerge.

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