

Cosmic Cartography 2022: Exploring the Cosmic Web and Large-Scale Structure



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The Absorption and Emission of Neutral Hydrogen around Star-Forming Galaxies at Cosmic Noon

Tuesday, 8 March 2022 11:00 (20 minutes)

HI is an important component of the CGM/IGM gas. I will present two powerful samples from the KBSS Survey that focus on the Ly α absorption and emission around $z \sim 2$ star-forming galaxies. For absorption, we use the spectra of ~ 3000 galaxies to assemble $\sim 200,000$ foreground-background galaxy pairs. The ensemble is used to construct a 2D map of Ly α absorption at 20-4000 kpc. The map suggests that outflow dominates the HI kinematics at < 50 kpc, while infall and Hubble expansion dominate at > 100 kpc. For emission, we obtain deep IFU observations on ~ 100 galaxies. We find that the Ly α emission is statistically symmetric at < 30 kpc, but stable angular momentum may start to establish. Lastly, I will present preliminary results on the connection between the Ly α emission and host galaxy properties.

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