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The baryonic content and gas accretion rate of high-redshift galaxies

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The weakness of the hyperfine HI 21cm line, the main tracer of the HI content of galaxies, has meant that we know little about the atomic gas content of high-redshift galaxies and its redshift evolution. In this talk, I will describe new HI 21cm studies of star-forming galaxies at $z \sim 0.7-1.5$ that, via stacking their HI 21cm emission signals, have resulted in the first measurements of the average atomic gas mass of high- z galaxies and the dependence of the atomic gas mass on the stellar mass, the $M_{\text{HI}}-M_{\text{star}}$ scaling relation. I will also describe the use of this scaling relation to determine the gas accretion rate and the total baryonic content of star-forming galaxies at these redshifts, and the evolution of these quantities over the last 9 billion years.

Presenter: KANEKAR, Nissim