Diffuse Emission Halos as a Probe of Ionizing Escape Fraction and Sources during Reionization

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Abstract

Two of the main questions for the Epoch or Reionzation are: (i) what sources reionized the Universe? and (ii) what is the escape fraction of ionizing photons from galaxies into the IGM? I will present our results demonstrating the use of the spatially extended Lya, Ha, and stellar continuum emission observed around star-forming galaxies from z_˜2 and up to z_˜7, and its comparison to future feasible JWST observations, to answer these two questions. Furthermore, I will show our recent calculations that indicate the JWST observability of the warm and hot CGM gas via the Thomson scattering of quasar radiation in massive galaxies, which appears to be redshift independent and thus enables measurements of the warm and hot halo gas properties, the baryonic content, and the impact of quasar feedback from z_˜0 to (at least) z_˜6.5 during Reionization.

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