

X31a Do UV-bright galaxies universally have a Ly α halo?

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While integral field units like Multi-Unit Spectroscopic Explorer (MUSE) have made it possible to study individual Ly α haloes (LAHs) of high-redshift Ly α emitters (high- z LAEs; e.g., Wisotzki+16; Leclercq+17, 20), LAHs of UV-selected galaxies have been only studied with narrow-band stacks in overdense regions (e.g., Steidel+11; Xue+17). It is still unknown whether UV-selected galaxies universally have a Ly α halo. Following our talk in the last ASJ meeting (X17a), we have individually searched for LAHs of UV-bright spec- z galaxies at $z = 2.9$ – 4.4 , using MUSE adaptive optics data in MUSE Extremely Deep Field with ≈ 100 to 140-hour integration (MXDF; Bacon+20 in prep.). Among 21 galaxies, 16 LAHs were confirmed. The LAH fraction is about 80% for both Sample 1 ($M_{1500} \leq -18.4$ and $z = 2.9$ – 3.9) and Sample 2 ($M_{1500} \leq -18.7$ and $z = 2.9$ – 4.4). Interestingly, the LAH fraction for galaxies with Ly α absorption (abs.) at the central part is $100.0^{+0.0}_{-12.5}\%$ ($100.0^{+0.0}_{-16.7}\%$) for Sample 1 (Sample 2), which is higher than that for galaxies without Ly α abs., $71.4^{+13.1}_{-18.8}\%$ ($66.6^{+15.6}_{-28.4}\%$). We also find that the LAHs of galaxies with Ly α abs. are typically more extended than those of galaxies without Ly α abs., though other UV and SED properties are similar. In this talk, we will also show properties of the host galaxies and Ly α for LAHs and non-LAHs, and discuss the physical mechanisms of LAHs.