Properties and interrelation of the faint, lensed Star-Forming Galaxy Populations viewed by MUSE/VLT and the HST towards the Epoch of Reionisation

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We present the largest sample of high-redshift, intrinsically-faint, lensed, star forming galaxies used to compute the Lyman-alpha emitter (LAE) fraction to date, around 1250 galaxies. With MUSE GTO data and deep Hubble photometry of four lensing clusters we analyse the interrelation of the LAE and Lyman Break Galaxy (LBG) population at redshifts between 3 and 7, including LAEs undetected in the continuum. We detect LAEs between $39.5 < \log(L_{Ly\alpha}) < 42$ and LBGs down to $M_{1500} \sim -12$. We compute the LAE fraction for our whole sample as well as the different trends of the LAE fraction between the bright and faint galaxies. Additionally, we derive UV and Lyman-alpha properties for our whole sample, investigating the differences between SFR and UV slope of those objects among the LBG population also selected as LAE, as well as trends with Lyman-alpha equivalent width (EW), UV absolute magnitude and redshift. We reinforce the typical picture of LAEs among LBGs as objects with high SFR, low dust attenuation, as well as the strongest emitters tending to be UV-faint objects with steep UV slopes, extending these previously observed trends to intrinsically very faint objects. When comparing the LAE fraction in the bright and faint halves of our sample, we find that the fraction is consistently greater for the bright half, particularly for low-EW objects and particularly at higher redshifts. This is suggestive of a population of UV-bright galaxies with low Lyman-alpha EWs residing in reionised bubbles and overdensities. This is particularly interesting in light of recent JWST-detected, UV-bright, low Lyman-alpha EW objects in the epoch of reionisation.