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Understanding Lyman continuum leaker candidates with MUSE, HST and JWST

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It has become clear in recent years, that the most important contributors of the ionising Lyman continuum photons at the epoch of reionisation are star-forming galaxies. To better understand their properties, we look at a sample of Lyman alpha emitters (LAEs) from MUSE at intermediate redshifts z=3-6.7 and find 12 Lyman continuum leaker candidates (Kerutt et al. in prep.) in the Hubble Deep Ultra Violet (HDUV) legacy survey (Oesch et al. 2018). I will present our analysis of these objects, which have escape fractions between 22% and 90%, assuming a high transmission in the intergalactic medium (IGM). However, contrary to observations at lower redshifts and predictions from models (e.g. Verhamme et al. 2017; Vanzella et al. 2020; Izotov et al. 2021), we do not find a strong correlation between the LyC escape fraction and the properties of the Lya line, such as the peak separation and the Lya equivalent width. A possible explanation for this discrepancy would be that the Lya photons do not originate from the same star-forming regions as the Lyman continuum emission we detect. We investigate this by using data from the JWST program FRESCO (PI Pascal Oesch), providing Ha line maps, which we compare to the Lya positions from MUSE.

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