

X45a The ISM properties and evidence of AGN in extreme emission-line galaxies at $z \sim 0.8$

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We report the physical properties of the ionized ISM in extremely strong emission-line galaxies at $z \sim 0.8$, discovered in the Subaru/HSC-SSP survey. They are good laboratories to investigate early galaxy evolution and are thought to be low-redshift analogues of sources responsible for cosmic reionization. We obtained high-quality panchromatic spectra using VLT/X-shooter for six candidates selected with extreme excess in z -band. All these objects have been confirmed to be at $z \sim 0.8$, showing strong [O III] λ 5007 (EW \sim 1000 Å) and other emission lines. The stellar mass and SFR are estimated typically to be $\sim 10^{8-8.5} M_{\odot}$ and $\sim 10 M_{\odot} \text{ yr}^{-1}$, i.e., ~ 2 dex above the main sequence of the epoch. Metallicities are measured to be as low as $12 + \log(\text{O}/\text{H}) \sim 7.7-8$ using the direct method, and the escape fraction of ionizing photons is estimated to be $\gtrsim 10\%$ (up to 90%) from the Mg II $\lambda\lambda$ 2796, 2803 doublet lines. Very interestingly, we found signatures of AGN in one source; a broad ($\sim 800 \text{ km s}^{-1}$ in FWHM) [O III] λ 5007 component and detection of very high-ionization lines, [Ne V] $\lambda\lambda$ 3346, 3426. These indicate the presence of either AGN-driven highly turbulent motions or outflows and the harder non-thermal radiation in such a low-mass galaxy.