

## A Search for $z=5$ H $\alpha$ and H $\beta$ + [O III] Dual-Line Emitters in JWST/CEERS Field

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The unprecedented sensitivity and resolution of the James Webb Space Telescope (JWST) have enabled us to uncover faint galaxies and AGNs in the early universe. Using their special colors shown in the JWST/NIRCam bands and compactness measurements, we report the discovery of 261 H $\beta$ + [O III] and H $\alpha$  dual-line emitters, including 58 AGN candidates (22%) which have compact morphology at rest-optical wavelength in the field of the CEERS project.

These objects have H $\beta$ + [O III] emission in F277W and H $\alpha$  in F410M, thus, their redshifts are restricted to  $5.03 < z < 5.26$ .

This method is peculiar, so that our AGN candidates are unique, except for one confirmed AGN with the same color behavior.

These dual-line emitters have an absolute UV magnitude range  $M_{UV} \sim -17$  to  $-22$  and their rest-UV luminosity function indicates that this population comprises  $\sim 40\%$  of the total star-forming galaxy population at this redshift. The number density of AGN candidates is significantly higher than the extrapolation from the luminous counterparts but is comparable to other measurements from JWST.

With an assumption of 26% Eddington ratio, our AGN candidates are expected to have black hole masses of  $10^6 - 10^7 M_{\text{sun}}$ .

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