

X28a Characterizing CO Emitters in SSA22-AzTEC26 Field

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We report physical characterization of four CO emitters detected near the submillimeter galaxy (SMG) SSA22-AzTEC26. We analyze the data from ~ 30 GHz bandwidth ALMA band 3 spectral scan observation of the SSA22-AzTEC26 field. In addition to the targeted SMG, we detect four line emitters with $\text{SNR} > 5.2$ in the cube smoothed with 300 km/s FWHM Gaussian filter. All the four sources have near-infrared (NIR) counterpart within 1 arcsec. We perform ultraviolet to far-infrared spectral energy distribution (SED) modelling to derive photometric redshift and physical properties. Based on photometric redshift, we identify two of them are CO(2-1) at redshift of 1.113 and 1.146, and one is CO(3-2) at $z = 2.124$. The three sources are massive galaxies with stellar mass $\gtrsim 10^{10.5} M_{\odot}$, but have different levels of star formation. Two of them lie within the scatter of star formation main sequence (MS), and the most massive galaxy lies significantly below the MS. However, all the three sources follow the MS gas fraction scaling relation. This shows that massive galaxies with low specific star formation rate can still host large gas reservoirs by direct detection of CO molecular emission, suggesting later gas acquisition and need for other mechanisms in addition to gas consumption to suppress the star formation.