

## CO OBSERVATIONS OF HIGH-Z OBJECTS

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### 1. BR1202-0725 at $z=4.7$

We have made a CO( $J=2-1$ ) observation using the Nobeyama 45m telescope aimed at examining physical properties of the molecular gas in the object. Upper limit obtained is 1.8 mK ( $3\sigma$ ) at a velocity resolution of 100 km s<sup>-1</sup>, which leads to an upper limit on the molecular gas mass of  $5.3 \times 10^{11} M_{\odot}$ , if we assume a line width of 250 km s<sup>-1</sup> obtained in  $J = 5 - 4$  line and the Galactic CO-to-H<sub>2</sub> conversion factor of 4.5  $M_{\odot}$  K km s<sup>-1</sup> pc<sup>2</sup>. The line ratio between 2-1 line and 5-4 line as well as those from 7-6 and 4-3 lines (Omout et al. 1996) imply that the mean gas density is as high as 10<sup>3-5</sup> cm<sup>-3</sup>, which is comparable to that in nearby star burst galaxies (e.g., Solomon et al. 1992).

### 2. Forming galaxy candidate cB58 at $z=2.7$

We have observed the object in CO( $J=3-2$ ) line aimed at detecting a large amount of molecular gas which is expected from the high star formation rate in this object. We have obtained an upper limit of 7.5 mK ( $3\sigma$ ) at a velocity resolution of 25 km s<sup>-1</sup>. The upper limit of the CO luminosity is  $4.4 \times 10^{10}$  K km s<sup>-1</sup> pc<sup>2</sup> if we assume a velocity width of 300 km s<sup>-1</sup>. A lower limit on the ratio of the H $\alpha$  line luminosity to the CO luminosity is at an upper part of, but within the range of ratios for nearby galaxies. Results are presented in Nakanishi et al. PASJ 49, 535 (1997).