

X24b Stellar masses of Lyman break galaxies at $z \sim 5$

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We made a sample of Lyman break galaxies at $z \sim 5$ in the field containing the GOODS-N using V , I_C , and z' band images taken with Subaru. Optical follow-up spectroscopy confirmed the identification of the redshift of ~ 5 for a bright sub-sample. We recently obtained Spitzer IRAC images in flanking field of GOODS-N region. With the IRAC images and the archived IRAC images for the GOODS-N region, we derived the SEDs of the $z \sim 5$ LBGs by combining the IRAC data and Subaru optical data.

Resulting stellar masses of the $z \sim 5$ LBGs ranges from $10^{10} - 10^{11} M_{\odot}$ and correlate well with the IRAC magnitudes. This stellar mass range is comparable to that of a LBG sample at $z \sim 2.3$ (Shapley et al. 2005), of which UV luminosity range is almost the same as that of our sample. No correlation against the UV luminosity is seen in our sample. We further obtained ages, amount of dust extinction, star-formation rates, but the constrain to these parameters are not tight due to the small number of bands we used for the fitting. For a part of the sample, we obtained NIR photometry, which improves the fitting results. We will discuss the evolution of LBGs from $z \sim 5$ to 2 and possible origin of the differential evolution of UV luminosity function of LBGs from $z \sim 5$ to 2, based on the SED fitting results.