## [P07-4] An Infrared Study of Lyman Break Galaxies in Spitzer First Look Survey Area

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Tracing the star formation history of the universe has been one of the key studies of galaxy evolution. Lyman break galaxies(LBGs) are star forming galaxies at $z\sim3$, and they are popularly used to understand the star formation activity at high redshift. Previous studies rely heavily on the optical data which sample the rest frame UV light. However, the rest frame UV light is not ideal for deriving stellar mass and the exact amount of star formation rate not affected by dust. Are LBGs massive galaxies, or small building blocks of the present day galaxies? And How reliable are the previously derived star formation rates? In order to answer this question, we study LBG candidates with the Spitzer First Look Survey data. We select about 1500 LBG candidates from a number of ancillary optical data sets (CFHT megacam u*, g band and KPNO MOSAIC R band). Spitzer IRAC photometry from 3.5 to 8.0 micron and optical photometry are fitted to various SEDs generated from a spectral synthesis model. Our result shows that bright LBGs are massive galaxies($\sim10^{11}M_{\odot}$), which cannot be explained easily by a simple hierarchical picture. We also present dust properties of these LBG candidates using MIPS 24 micron data.

## [P07-5] Near-IR Selected Extremely Red Objects in the CDFS

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Using NIR data from the Very Large Telescope (VLT) catalog of the Great Observatories Origin Deep Survey (GOODS), we have selected $J-K\geq2$ mag galaxies in the region called Chandra Deep Field South (CDF-S). These galaxies are most likely to be old galaxies or dusty starforming galaxies at $z\geq2$, and we call them NIR-selected Extremely Red Objects (NEROs). Whether NEROs are old, early types or dusty starbursts, has an important implication on the galaxy formation scenario. Hierarchical galaxy formation models predict that massive early-type galaxies form recently. If NEROs are old, early-types at $z>2$, this contradicts with the model prediction. If NEROs are dusty, starforming galaxies, we might be witnessing the formation of massive galaxies at $z\sim2$, consistent with the hierarchical picture. In order to tell if NEROs are old or dusty, we study their morphological properties via quantitative method using the HST data. Also, we construct the spectral energy distributions (SEDs) of NEROs using Spitzer data, and examine how the characteristics of the SEDs correlates with their morphology. We will present these results in this poster, and discuss the implication of our results on the formation history of massive galaxies.