

X50b Rest-frame optical emission lines of $z > 4$ galaxies with Subaru/HSC and SPLASH

Yuichi Harikane, HSC Project 209 team

Inter-stellar medium (ISM) properties of galaxies are important to understand galaxy evolution. They also give insight into the source of the cosmic reionization at high-redshift. In this context, we investigate rest-frame optical emission lines of ~ 25000 $z \gtrsim 4$ galaxies found in our GOLDRUSH and SILVERRUSH projects using deep and wide Spitzer/IRAC images obtained by the Spitzer Large Area Survey with Hyper-Suprime-Cam (SPLASH). The rest-frame optical emission lines at $z > 4$ are redshifted into the wavelength coverage of the Spitzer/IRAC images, which sometimes makes a color excess of $[3.6] - [4.5]$. We stack the Spitzer images of ~ 900 Ly α emitters (LAEs) at $z = 5.7$ and 6.6 , and detect the color excess of $[3.6] - [4.5] < -0.5$, implying the strong [OIII]5007 emission line redshifted into the $[3.6]$ band. In this presentation, we also show results of the LBGs, and discuss the ISM properties of the LAEs and LBGs based on relations between the IRAC color excess and the equivalent width of Ly α emission or the UV magnitude.