X14a The Mean Absorption Line Spectra of a Selection of Luminous $z \sim 6$ Lyman Break Galaxies

播金優一 (東京大学宇宙線研究所), Nicolas Laporte (University of Cambridge), Richard Ellis (University College London), 松岡良樹 (愛媛大学)

We examine the absorption line spectra of a sample of 31 luminous ($M_{\rm UV} \simeq -23$) Lyman break galaxies at redshift $z \simeq 6$ using data taken with the FOCAS and OSIRIS spectrographs on the Subaru and GTC telescopes. For two of these sources we present longer exposure data taken at higher spectral resolution from ESO's X-shooter spectrograph. From maximum absorption line depths of SiIIλ1260 and CIIλ1334, we infer a mean covering fraction of $\geq 0.85 \pm 0.16$ for our sample. This is larger than that determined using similar methods for lower luminosity galaxies at slightly lower redshifts, suggesting luminous galaxies do not play a prominent role in concluding reionization. Using various absorption lines we deduce gas-phase and stellar metallicities of ~ 1 and 0.4 $Z_{\odot}$, respectively. We discuss the implications of these metallicity estimates for the typical ages of our luminous galaxies.