

X15a Subaru/Suprime-Cam Search of Low-Luminosity Quasars at $z \sim 6$

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High redshift ($z > 6$) quasars are unique probes of cosmic reionization, SMBH early growth and its co-evolution with host galaxies. Although more than 100 quasars have been found at $z > 6$, most of them are the most luminous population at this epoch, preventing one from probing down the quasar luminosity function (QLF) at the faint-end ($M_{1450} > -24$). We performed a search of $z \sim 6$ low-luminosity quasars with deep observation by Subaru/Suprime-Cam ($z_R^{lim,3\sigma} = 24.15$) in 6.5 deg^2 . As an initial result, two out of seventeen candidates were spectroscopically confirmed to be real quasars with their absolute magnitudes $M_{1450} = -23.10$ and -22.58 (Kashikawa et al. 2015).

Moreover, Subaru/FOCAS spectroscopy for four of the remaining ten candidates found that one of them is a $z \sim 1$ [OII] emitter and the other three are not detected. In addition, photometric data from Hyper Suprime-Cam Subaru Strategic Program survey enables us to see the HSC colors of our candidates, finding that only the two already-confirmed quasars have red $i - z$ colors. These observations imply that the data point on the $z \sim 6$ QLF by Kashikawa et al. (2015) is not a lower-limit, but a complete constraint on the faint-end. Based on the QLF, the quasar contribution on the UV photon budget during the reionization is up to 15%.