

Probing the Genesis of Supermassive Black Holes: Emerging Perspectives from JWST and Expectation toward New Wide-Field Survey Observations

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Subaru Telescope as a high- z quasar factory

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The 8.2m Subaru Telescope features a very stiff structure, enabling us to mount instruments at the prime focus and achieve an unprecedentedly wide field-of-view among the largest optical/near-IR telescopes. Subaru has played a leading role particularly in survey-type observations, e.g., an extensive study of Lyman-alpha emitters in the epoch of reionization. In the past 10 years, we have been carrying out a high- z quasar survey with Hyper Suprime-Cam (HSC) at the prime focus, which can image a 1.5-deg circular field in a single shot. We have so far discovered 200 quasars at $5.6 < z < 7.1$, as well as coeval luminous galaxies and Galactic brown dwarfs. The quasars are typically ~ 100 times fainter than the luminous quasars reported in previous surveys, and bridge the gap between the latter and extremely faint AGNs recently discovered by JWST. This talk will be a brief review of the project (named SHELLQs; Subaru High- z Exploration of Low-Luminosity Quasars), including results from follow-up observations with JWST and ALMA, and some future prospects.

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