

Z101r Galaxy formation and evolution seen by ALMA and Subaru

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In order to improve our understanding of galaxy formation and evolution across cosmic time, the Subaru telescope has been a flagship instrument in the optical to near-infrared regime for the last 20 years. Recently we have been also allowed to utilize a novel tool, the Atacama Large Millimeter/submillimeter Array (ALMA), to open a new window at (sub)millimeter wavelengths. In this talk, we overview what we have learned using both cutting edge telescopes. While Subaru uncovers tons of various galaxies in the early universe, ALMA shows that our knowledge is still highly incomplete, adding cold dust/gas information and unveiling missed populations. Significant amount of time of both telescopes has been invested to proto-clusters, which is uncovering the interaction between galaxies and cosmic web on various scales. ALMA is often used to characterize rare populations in the very early universe, so-called the Epoch of Reionization, which are originally sampled by Subaru. In the near future, the synergy between ALMA and Subaru would be more expected, considering installation of new instruments such as PFS, FOCAS-IFU, and ULTIMATE, onboard Subaru.