## Z108r Exploring the Unseen Distant Universe with Large Aperture Submillimeter-Terahertz Observations

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Submillimeter-Terahertz (submm-THz) observations probe key processes that elucidate galaxy formation and evolution from right after the Big Bang to the current epoch. For example, in the submm-THz, we can observe dust emission, which constitutes half of the electromagnetic emission in the universe, and important spectral lines to unveil the physical conditions in the interstellar medium. However, we have not yet obtained the capabilities needed to fully explore the submm-THz sky due to a combination of limited resolution, limited sensitivity, and limited field of view. The planned telescopes, such as LST/AtLAST and ATT, will conquer all of these limitations and enable access to the unseen universe in the submm-THz. In this talk, I will discuss what LST/AtLAST and ATT will enable us to explore distant galaxies based on insights from recent studies of ALMA large surveys, the cosmological survey with the integral field spectrograph VLT/MUSE, and science planned for SPICA. Some of these works have exposed key missing pieces in revealing how the first galaxies were formed and how they evolved, which a large aperture submm-THz single dish telescope will finally let us fill.