

ALMA2019: Science Results and Cross-Facility Synergies



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The ALMA lensing cluster survey: initial outcomes

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Contributed talk

Abstract:

The ALMA lensing cluster survey (ALCS) is an on-going cycle-6 large program to observe high magnification regions of 33 lensing clusters to expand the surveyed volume of high-redshift dust-continuum-selected and line-emitting galaxies. The ALCS covers 88 arcmin^2 in total, to a depth of $80 \mu\text{Jy}$ (1.2 mm , 1 sigma), achieved by using a 15-GHz-wide spectral scan. The sample comes from the best-studied massive clusters also imaged in HST programs, i.e., CLASH, HFF, and RELICS. In this presentation, we will describe the survey design, the current status of the survey, and highlights of some selected initial outcomes. Emphasis will be placed on magnified ALMA continuum sources without HST counterparts, i.e., intrinsically-faint, HST-dark ALMA sources. These sources have faint IRAC counterparts, and the measured 1.2-mm to IRAC flux ratios suggest these are very distant ($z > 4-6$) galaxies or forming massive galaxies at $z \sim 4$, which are often completely invisible even in the deepest WFC3/HST images.

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Session Classification: Cosmology