

X39b FOSSILS: Formation Of Sub-Structure In Luminous Submillimeter Galaxies

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Luminous submillimeter galaxies (SMGs) at high redshift are the most likely ancestors of massive galaxies that dominate the central potential of clusters we see today. Mergers or large-scale gas inflow in isolated disks are possible scenarios explaining their large star formation rates, but the exact triggering mechanism is still under debate. This poster presents “Formation Of Sub-Structure In Luminous SMGs (FOSSILS)”, an ALMA FIR (860 μm) continuum survey to obtain the largest sample of unlensed SMGs which are resolved down to 300-400 pc resolution (0.06” in angular scale). The survey allows us to statistically study the morphologies and sub-structure of star formation activity in sub-kpc scales for the first time. We present sub-kpc resolution 860 μm continuum maps for the full sample, including 30 luminous SMGs in the UDS field obtained through ALMA Cycle 9–11 observations. As an initial result, we will focus on some of the SMGs with intriguing morphology, such as the two-arm spirals of dust and on-going multiple merger systems at cosmic noon.