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Presentation Requested: oral
Category: Evolution of the Interstellar Medium and Star formation over Cosmic Time
Question: Other

The evolution in the molecular gas content of Luminous Infrared Galaxies at z=0.25-0.65

Massive galaxies in the early Universe are known to form stars at rates >10 times that of galaxies of the same stellar mass today. Measurements of the molecular gas content in galaxies are needed to understand the mechanisms by which galaxies accumulate their gas and convert it into stars, and how these change over time. While observations have shown that the molecular gas fraction has declined from 30-50% at z = 1-2 to 6% at $z = 0$, little is known about the evolution in gas content at intermediate redshifts, where the assembly of the Hubble sequence occurs. We detected the CO J = 3-2 emission in a sample of 20, spectroscopically confirmed, non-interacting luminous infrared galaxies at z = 0.25-0.65 using ALMA. These observations allow us to measure the molecular gas mass in these galaxies and to explore its relation to stellar mass and star formation rate at this epoch, bridging the gap in our knowledge of these scaling laws between $z = 0$ and $z > 1$.