Title:

ALMA DenseGAS Survey: Testing the (non-)universality of the dense gas star formation scaling relation

Summary:

Star formation in galaxies is closely linked to molecular gas, the raw material for star formation, and in particular to dense molecular gas, which is directly responsible for forming stars. Recent molecular gas observations of nearby galaxies suggest that the efficiency of star formation may vary with galaxy properties and evolutionary stage, yet the origin of this variation remains poorly understood. In this project, we will analyze ALMA observations of dense molecular gas in nearby galaxies to reveal how the relationship between dense gas and star formation changes among galaxies with diverse star-forming activity, thereby testing the universality of the dense-gas star formation law. Building on this work, we further aim to develop a larger-scale ALMA observing program.