

P106b The CARMA-NRO Orion Survey

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Star formation not only determines the observed properties of galaxies, but also significantly influences galaxy evolution. What drives and regulates star formation in galaxies? There is little consensus to this apparently simple and fundamental question. Theoretical studies have demonstrated that star formation in turbulent clouds proceeds at high rates. However, star formation is known to occur in a very low rate in galaxies. Therefore, some processes must slow down star formation. It remains uncertain what processes make inefficient, e.g., stellar feedback, magnetic field, and cloud turbulence. It is crucial to characterize internal cloud structure and physical properties of nearby star-forming regions to understand the roles of the processes listed above in star formation.

In our Orion project, we have made wide-field ($1^\circ \times 2.5^\circ$), high-resolution ($5'' - 10''$) ^{12}CO ($J = 1 - 0$), ^{13}CO ($J = 1 - 0$), and C^{18}O ($J = 1 - 0$) maps toward the nearest Giant Molecular Cloud, **Orion A** (see Kong et al. 2018 for more details). The maps can be used as a template of the nearby star-forming regions. We will provide the CARMA-NRO Orion dataset to public. Using these maps, we attempt to comprehensively-characterize the cloud structure and kinematics to answer the above questions, In this presentation, I will show some of the latest results.