

R13b Identification of star-forming molecular clouds in post-merger galaxies using 50 pc resolution ALMA data

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Galaxy mergers play a significant role in triggering star formation and shaping galactic structures. However, many problems remain regarding the specific impact of mergers on galaxy evolution. Both simulations and observations have revealed that galaxy mergers can form molecular gas disks that are indistinguishable from those seen in isolated galaxies.

In this study, we investigate the properties of the molecular clouds formed in the disks of 14 nearby post-merger galaxies through our high resolution ALMA data obtained at 50 pc scales. We use PYCPROPS, which is the cloud identification algorithm, to identify molecular clouds and to obtain physical properties, such as the number of clouds, the surface density, the internal pressure, and the virial parameter. This is a case study of one of the sample galaxies NGC 34, which is an infrared bright post-merger with large spiral arms emanating from the disk. Furthermore, by statistically comparing these properties with the molecular clouds in the isolated galaxies investigated in the PHANGS survey, we aim to elucidate how galaxy mergers influence the formation of molecular gas or clouds.