

R10c Recovering extended structures in merger remnants

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Contrary to the classical scenario of galaxy merger in which an elliptical galaxy forms due to a major merger, some studies argued that some fraction of the merger would reemerge as a disk galaxy by forming an extended gaseous disk. In order to check this scenario, we conducted a CO (1–0) survey on local merger remnants with the ALMA 12m-array and found a high occurrence rate of molecular gas disks with various sizes. However, the ALMA data were taken using the 12m-array alone and they were clearly suffering from the missing flux problem. In order to correctly quantify the true size of the molecular disk and assess its relation to the stellar size, we have conducted follow-up CO (1–0) observations with ACA towards 14 merger remnants. By combining new ACA data with the existing 12-m array data, we find that the distribution of the molecular gas is more extended in the combined map than the 12-m array map. The average of missing flux is $\sim 40\%$, and, in the worst case, the missing flux is $\sim 55\%$. The fluxes are almost the same close to the galactic center between the 12m-array map and the combined map, but the flux measured from the 12m-array map becomes smaller than the flux of the combined map at larger radii. We re-estimate the size of the molecular gas disk using the combined maps, and present the comparison of the sizes of the gas disk with the stellar component.