The gas-to-dust ratio and molecular gas properties of (U)LIRGs

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Abstract

We present IRAM-30m ^{12}CO observations of a sample of 55 (U)LIRGs. Using Herschel photometric data, we fit the SED of our sources to a modified blackbody model, deriving the dust parameters and infrared luminosities. Using local reference samples and assuming a constant gas-to-dust mass ratio, we obtain a (U)LIRG CO-to-H$_2$ conversion factor $\alpha = 0.87\,\mathrm{M}_\odot\,(\mathrm{K\,km\,s^{-1}\,Mpc^2})^{-1}$. We also study the relation between the infrared luminosity with the CO luminosity through the depletion time of the total molecular gas mass, finding an enhancement of the SFE for (U)LIRGs with respect to local normal galaxies.