

A panchromatic view of the Herschel Virgo Cluster Survey background sources

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Abstract

The evolution of galaxies is set by a complex mechanism of recycling between the stellar and the gaseous components, a process that evolves with time and depends strictly on the reservoir of gas and dust available for the star formation. In order to investigate these processes in nearby Universe, we built a sample of ~ 2000 galaxies selected at $250 \mu\text{m}$ at $z < 0.4$ for which we have robust estimation of flux densities between 60 and $500 \mu\text{m}$. We joined to these data photometry estimation obtained with Galex, SDSS, 2MASS, and WISE to have a multi-wavelengths view of each source. We then apply an energy-balanced technique of SED fitting (MAGPHYS) and we estimate different physical parameters, such as star formation, stellar mass, and total IR luminosities. Galaxies at $z \sim 0.1$ have typical Dust Mass of $10^8 M_{\odot}$, and span a high range of star formation rate, between 0.001 to $50 M_{\odot} \text{yr}^{-1}$. We investigate also the impact of removing different data set from the SED fitting procedure. We found that Mid Infra red wavelengths, i.e. WISE data, have a strong impact in determining the balance between the gas component heated by the interstellar radiation field and the gas component heated in young clouds through star formation.