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Title:	Galaxy And Mass Assembly: Correlation with ALFALFA HI sources
Authors:	Rana, Rahul (/jspui/browse?type=author&value=Rana%2C+Rahul)
Keywords:	Galaxy And Mass Assembly GAMA galaxies Properties of galaxies
Issue Date:	7-Sep-2018
Publisher:	IISERM
Abstract:	We compile a sample of HI-rich galaxies and study their properties at other wavelengths, their environment and morphology to understand their evolution. Our sample contains 361 galaxies in the redshift range $0.002 < z < 0.06$ and comprise a variety of morphologies from early-type spirals to late-types and Sd-Irregular. We use data from the Galaxy and Mass Assembly (GAMA) and Arecibo Legacy Fast Arecibo L-band Feed Array (ALFALFA) surveys. The spectroscopic and photometric data from GAMA provides an insight into the environment, morphology and the dust content of the HI-detected galaxies. ALFALFA provides HI mass for these common galaxies. In this work we analyse the colour, dust mass, stellar mass, star formation rate (SFR) and neutral hydrogen (HI) mass of the HI-detected galaxies. We find that SFR is highly correlated with HI mass and dust mass. We divided our sample into red and blue galaxies and find that red galaxies have low specific star formation rate (sSFR) and high metallicity. We determine the doubling time and gas depletion time which suggests that red galaxies will finish their HI gas before doubling their stellar mass. This implies that red galaxies are more evolved than their blue counterparts. We also find that red spirals are more likely to reside in denser environment than other galaxies in our sample despite having high HI mass and stellar mass.
URI:	http://hdl.handle.net/123456789/1028 (http://hdl.handle.net/123456789/1028)
Appears in Collections:	MS-13 (/jspui/handle/123456789/914)

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