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Gas content in galaxies: peculiar vs. normal

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Abstract We present a study of the interstellar medium in 275 galaxies showing several types of peculiarities (polar rings, counter rotation, faint outer shells and AGN) and of 1769 galaxies, considered to be a fair representation of 'normality'. Masses for warm dust, atomic and molecular gas, as well as X-ray luminosities have been converted to a uniform distance scale taken from the Catalogue of Principal Galaxies (PGC).

Apart from X-ray luminosities, galaxies hosting AGN show no differences of ISM content with respect to normal ones. Polar ring galaxies on the contrary show a normalised content of cold gas one order of magnitude higher than the reference value derived for normal galaxies. The inferred gas masses are sufficient to stabilise polar rings through self-gravity. Shell galaxies and galaxies with counterrotation are similar to the normal galaxies and probably represent events that have been already evolved. Although counterrotators and polar rings probably share a common origin, the gas masses estimated here confirm that light gas rings accreted by future counterrotators may have evolved faster than the self-gravitating structures of polar rings.

The data for non interacting objects can be used in future studies to define a template ISM content for 'normal' galaxies along the Hubble sequence. They are in a catalogue (Bettoni et al. 2003) that can be accessed on-line at the Centre des Données Stellaires (CDS) or at:
<http://dipastro.pd.astro.it/galletta/ismcat/>.