Galaxies driven only by secular evolution?

Lourdes Verdes-Montenegro on behalf of the AMIGA team
Instituto de Astrofisica de Andalucia (CSIC), email: lourdes@iaa.es

Abstract. The AMIGA project (Analysis of the interstellar Medium of Isolated GAlaxies, http://amiga.iaa.es) has identified a significant sample of very isolated \( T_{cc} \) (nearest-neighbor) \( \approx 2-3 \) Gyr galaxies in the local Universe and revealed that they have different properties than galaxies in richer environments. Our analysis of a multiwavelength database includes quantification of degree of isolation, morphologies, as well as FIR and radio line/continuum properties.

Properties usually regarded as susceptible to interaction enhancement show lower averages in AMIGA—lower than any galaxy sample yet identified. We find lower MIR/FIR measures (Lisenfeld et al. 2007), low levels of radio continuum emission (Leon et al. 2008), no radioexcess above the radioFIR correlation (0%, Sabater et al. 2008), a small number of AGN (22%, Sabater et al. 2012), and lower molecular gas content (Lisenfeld et al. 2011). The late-type spiral majority in our sample show very small bulge/total ratios (largely <0.1) and Sersic indices consistent with an absence of classical bulges (Durbala et al. 2008). They show redder \( g-r \) colors and lower color dispersion for AMIGA subtypes (Fernandez-Lorenzo et al. 2012) and show the narrowest (gaussian) distribution of HI profile asymmetries of any sample yet studied.

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References