

Galaxies driven only by secular evolution?

L. Verdes–Montenegro¹ on behalf of AMIGA team

¹Instituto de Astrofísica de Andalucía, Granada, IAA-CSIC, Granada, Spain

Abstract.

The AMIGA project (Analysis of the interstellar Medium of Isolated GALaxies, <http://amiga.iaa.es>) has identified a significant sample of very isolated ($T_{cc}(\text{nearest-neighbor}) \sim 2\text{-}3\text{Gyr}$, Verdes-Montenegro et al 2005) 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 (Verley et al 2007), 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 (Espada et al 2011)

Keywords. Galaxy evolution, environment, isolated galaxies, AMIGA project.

References

- A. Durbala, J. W. Sulentic, R. Buta, and L. Verdes-Montenegro 2008 MNRAS, 390, 881
D. Espada, A. Bosma, L. Verdes-Montenegro, E. Athanassoula, S. Leon, J. W. Sulentic, and M. S. Yun 2005, A&A, 442, 455
D. Espada, L. Verdes-Montenegro, W. K. Huchtmeier, E. Garcia, R. Fisher, S. Leon, U. Lisenfeld, J. Sabater, J. W. Sulentic, and S. Verley 2011, A&A, 532, 117
M. Fernandez Lorenzo, J. Sulentic, L. Verdes-Montenegro, J.E. Ruiz, J. Sabater and S. Sanchez 2012, A&A, 540, A47
S. Leon, L. Verdes-Montenegro, J. Sabater, D. Espada, U. Lisenfeld, A. Ballu, J. W. Sulentic, S. Verley, G. Bergond, and E. Garcia 2008, A&A, 485, 475
U. Lisenfeld, L. Verdes-Montenegro, J. W. Sulentic, S. Leon, D. Espada, G. Bergond, E. Garca, J. Sabater, J.D. Santander-Vela, and S. Verley 2007, A&A, 462, 507
U. Lisenfeld, D. Espada, L. Verdes-Montenegro, N. Kuno, S. Leon, J. Sabater, N. Sato, J. Sulentic, S. Verley, and M. S. Yun 2011, A&A, 534A, 102
J. Sabater, S. Leon, L. Verdes-Montenegro, U. Lisenfeld, J. W. Sulentic, and S. Verley 2008, A&A 486, 73-83
J. Sabater, L. Verdes-Montenegro, S. Leon, P. Best, J. W. Sulentic 2012, A&A 545, A15
L. Verdes-Montenegro, J. W. Sulentic, U. Lisenfeld, S. Leon, D. Espada, E. Garcia, J. Sabater, and S. Verley 2005, A&A, 436, 443
S. Verley, S. Leon, L. Verdes-Montenegro, F. Combes, J. Sabater, J. W. Sulentic, G. Bergond, D. Espada, E. Garca, U. Lisenfeld, and S. C. Odewahn 2007, A&A, 472, 121