

NEW RESULTS FROM INTEGRATED SPECTROSCOPY OF NEARBY GALAXIES IN THE HERSCHEL REFERENCE SURVEY

T. M. Hughes, L. Cortese, A. Boselli, G. Gavazzi, J. I. Davies

*Sterrenkundig Observatorium, Universiteit Gent, Krijgslaan 281-S9,
B-9000 Gent, Belgium*

E-mail: thomas.hughes@ugent.be

We investigate the relationships between stellar mass, metallicity and gas content for a sample of nearby late-type galaxies in different environments. We derive oxygen abundances using new integrated, drift-scan optical spectroscopy and the metallicity calibrations of Kewley & Ellison (2008). Combined with ultraviolet to near-infrared photometry and HI 21 cm line observations, we reconstruct the stellar mass - metallicity relation. We find that, at fixed stellar mass, galaxies with lower gas fractions typically also possess higher oxygen abundances. We also observe a relationship between gas fraction and metal content, whereby gas-rich galaxies are typically metal-poor. Statistically, the stellar-mass metallicity relation is invariant to the environment. We demonstrate how some gas deficient cluster spirals may only appear to be more metal-rich compared to their field counterparts. These results indicate that internal processes, rather than environmental effects, play a key role in shaping the stellar mass-metallicity relation.