

Physical conditions in H II galaxies

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We present a spectrophotometric survey of 111 H II galaxies. Observations were made at the ESO 1.52m telescope, with the B&C spectrograph. Our sample presents a great overlap with Terlevich *et al.* 1991. Additional targets come from the Calan-Tololo and Marseille catalogues. All objects have been observed and analysed homogeneously. We analyse their statistical properties and derive physical conditions (reddening, electron temperature, electron density), as well as chemical abundances.

In order to evaluate the quality of our survey, we compare our emission line intensities with Terlevich *et al.* (1991). The two data sets agree well within 0.1 dex. Furthermore, for low intensity lines, Terlevich *et al.* (1991) measurements are systematically higher than ours, which indicates a slightly higher S/N in our spectra (Figure 1), as lines measured in low S/N conditions tend to be systematically overestimated.

We were able to spatially resolve distinct regions of star formation in individual galaxies. We determine electron temperatures and abundances for each one of these regions separately. The variations of electron temperatures and oxygen abundances of the individual regions, compared with the integrated galaxy, are small and within observational uncertainties (0.1 dex for electron temperatures and 0.2 dex for oxygen abundances, see Figure 2). We also analysed fluctuations in extinction and electron densities, and found them to be sometimes important, especially for the extinction.

Thus, despite their 'blobbiness' and the significative variations in some physical properties, H II galaxies are chemically fairly homogeneous and well mixed.

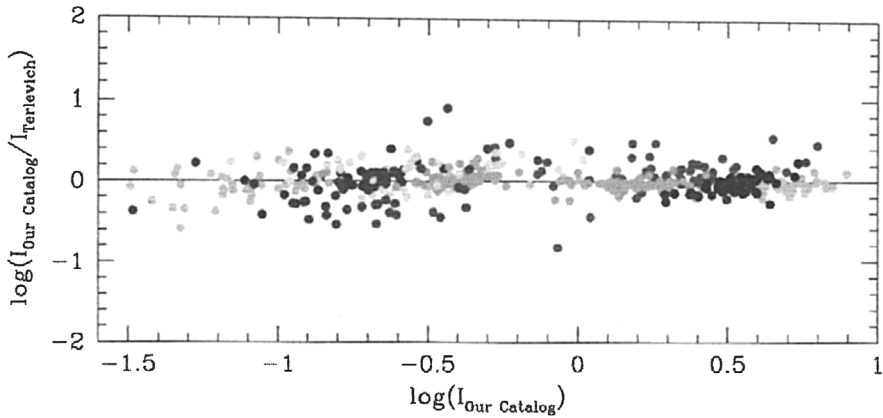


Figure 1. Comparison of our emission line intensities with Terlevich *et al.* (1991).

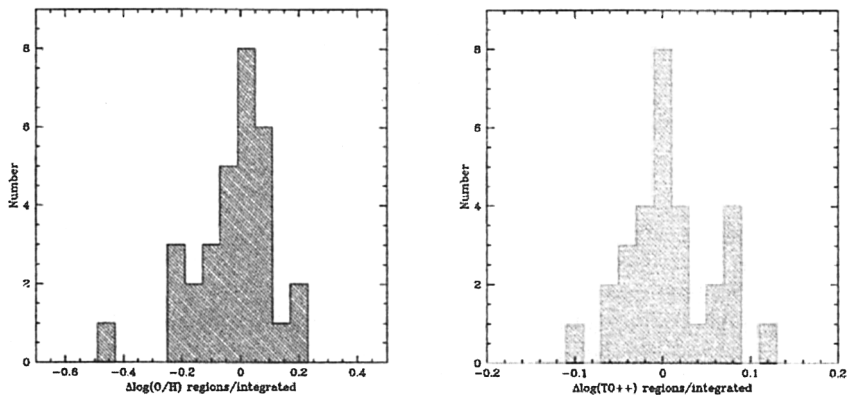


Figure 2. Electron temperatures and oxygen abundances of individual regions, compared to the integrated galaxies.

References

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