Spectroscopic study in the visible and near infrared wavelength of an Hα-selected sample of star-forming galaxies at $z = 0.84$

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Abstract

In this work we study the physical properties of star-forming galaxies selected in an Hα near-infrared narrow-band survey tuned for redshift $z = 0.84$ (Villar et al. 2008, 2011). Also, we present a sample at $z \sim 1$ with mass greater than 10^{10} $M_\odot$ with Hα emission. The observations were carried out with WHT/LIRIS (see Sánchez de Miguel et al. 2011, in *Highlights of Spanish Astrophysics VI*). The rest of the data from the spectra archive of the RAINBOW Cosmological Survey database (Pérez-González et al. 2005, 2008; Barro et al. 2011ab). According to the redshift distribution of these galaxies, 65% of the galaxies are in a redshift range of 0.005. This velocity range corresponds to less than 25% of the effective volume. Which could be indicative of the presence of substructure. A total of 48 galaxies have detected Hα emission and other 12 show [NII]6584. To complete our multi-wavelength sample we found 23 galaxies with Hβ, [OIII]5007 or [OII]3727 detections. Using this photometry from ancillary data we will calculate nebular and stellar extinctions. We have calculated metallicities using the [NII]/Hα ratio and the Pettini & Pagel (2004) calibrations. The metallicity of samples are compatible with the local galaxies. We found that in all the diagnostic diagrams galaxies have similar properties to the local ones, except they are intrinsically brighter for the same equivalent width [OII]3727.