

First results of an observational test of a double reionization scenario by searching for galaxies at high redshift.

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Abstract

The study of high redshift galaxies is crucial for understanding the reionization process, the formation and evolution of galaxies, and the large-scale structure in the Universe. The main goal of this project was to obtain an ultra-deep image taken with a narrow-band filter (FWHM = 11nm and central wavelength $\lambda_c = 1.254 \mu\text{m}$), designed by the ALBA team, and installed in the CIRCE nIR camera for GTC, with the aim of detecting LAEs (Luminous Lyman- α Emitters) at $z = 9.3$ by the flux excess due to their Ly α emission. In this sense, this project would allow to support or reject the double reionization scenario predicted by the AMIGA model (Salvador-Solé 2015). The ultra-deep image has been obtained within the Extended Groth Strip (EGS) field, reaching a limiting AB magnitude ~ 22 in the ALBA narrow-band filter. With this depth we could not detect any candidate for LAE at high redshift. In addition, we have performed a scientific analysis of some properties of the identified galaxies, gathering the available ancillary information of these objects from the 3D-HST and CANDELS surveys. (See poster).