

Abstract

I will present recent observations with VLT/MUSE and X-Shooter of some extremely faint (magnitude 29-32), young (age < 10Myr) and compact (few tens parsec) star forming systems at $z \sim 3-6$, strongly magnified by the galaxy clusters of the Hubble Frontier Fields survey. New luminosity and stellar mass regimes have been explored within the first 2 Gyrs after the BB with reasonable good signal to noise ratios. Remarkably, the inferred physical properties of two objects are similar to those expected in some globular cluster formation scenarios, representing the best candidate proto-globular clusters (proto-GC) discovered so far. The possibility that proto-GCs might contribute to the ionization budget of the universe and augment the Ly-alpha visibility is also considered. These results underline the crucial role of JWST in characterizing the rest-frame optical and near-infrared properties of such low-luminosity high- z objects.