Evolution of stellar metallicity in high redshift galaxies.

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Abstract

Metallicity is a fundamental property of galaxies, and it's study can place important constraints on galaxy evolution. In particular, stellar metallicity is a direct measure of the amount of metals present in a galaxy, as a large part of the heavy elements lie in its stars. In spite of its importance, stellar metallicity has been measured only a handful of high-z sources, as high signal to noise and very long exposures are required to measure it from well defined photospheric absorption features in the UV rest frame. Our pilot study of the mass-stellar metallicity relation at z$\sim$3 (Sommariva et al. 2012) with FORS2 has confirmed the feasibility of such studies at high-z as well as the low metal content derived independently for the gas phase component. But due to the faintness of the targets at z$\sim$3 only a limited sample has been collected, and the sparse data at lower redshift do not allow yet to study the cosmic evolution of the stellar metallicity. Here I will present the new results coming from MODS and GMASS data observed at z$\sim$2. The aim of this work is to trace, for the first time, the cosmic evolution of stellar metallicity from z$\sim$2 to z$\sim$3, and compare the observational results with the predictions of the theoretical models.