

Evolution of stellar metallicity in high redshift galaxies.

V. Sommariva¹, F. Mannucci², G. Cresci², A. Cimatti¹, F. Calura³, M. Castellano⁴, et al.

¹ *Bologna University, Italy*

² *INAF Arcetri Firenze, Italy*

³ *INAF Bologna, Italy*

⁴ *INAF Roma, Italy*

Abstract

Metallicity is a fundamental property of galaxies, and its 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.