

Title: An unprecedented view of galaxies during the EoR with COSMOS-Web

Abstract/summary: I will present first results from the JWST COSMOS-Web survey related to the Epoch of Reionization. Observation of this field has just been completed (in January 2024). We have already detected several hundreds of galaxies at $z > 9$, finding an excess of bright galaxies compared with expectations. We are focusing our analysis on determining the origin of this excess by measuring the physical properties of $z > 8$ galaxies (including SFR, star formation history, dust attenuation, UV slope, ionizing photon production efficiency, etc), and linking derived properties to the large-scale environment of these very high redshift galaxies (on 10Mpc scales), leveraging the uniquely large size of COSMOS-Web. The area covered and the number of galaxies detected allow us to reduce the cosmic variance as much as possible and constrain the bright-end of the UV luminosity function at very high redshift. I will also outline the next steps for COSMOS-Web: the detection of thousands of galaxies at redshift greater than 6 - during the epoch of reionization - is expected, reaching most likely more than half a million galaxies across all redshifts. This will give us an unprecedented view of the formation and evolution of galaxies during the 500 Myrs after the Big Bang. In particular, the number and properties of very high redshift galaxies will allow us to challenge different cosmological models of galaxy formation, estimate the size and growth of ionization bubbles, and constrain the speed of reionization of the Inter-Galactic Medium.