SF2A S14 Galaxies in the era of JWST - Presentation

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**“Building the COSMOS-Web galaxy catalog:
A key resource for tracing galaxy evolution with JWST observations”**

Abstract

Since the beginning of the observations in 2022, JWST has revealed the faintest and furthest galaxies ever observed. However, to push forward our understanding of early mass assembly and processes driving star formation efficiency, there is a need for wider extragalactic surveys, large enough to eliminate cosmic variance, and probe the early filamentary large-scale structures. COSMOS-Web is the largest imaging program in the JWST's first cycle of observations, with a contiguous coverage of 0.54 deg² in the COSMOS field. Thanks to its deep and high-resolution photometry in five infrared filters and the combination of multiwavelength data available in COSMOS, it will provide an valuable resource for the study of the formation and evolution of galaxies and their environments back to the universe's earliest epochs. In this talk, I will present an overview of this survey and discuss the creation process of the COSMOS-Web catalog, from the detection of sources in the images to the determination of galaxy properties such as their magnitude, redshift or stellar mass. I will highlight the catalog’s first results, including remarkable depth, redshift coverage and precision, surpassing those obtained by previous wide deep field surveys. Furthermore, I will demonstrate how this key resource can be used to investigate galaxy evolution, such as the study of galaxy clustering across the cosmic web.