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Maxime Tarrasse
CEA Paris-Saclay

Title: Toward Quiescence: The Role of Optically-Faint Galaxies in the Morphological Transition of Massive Star-Forming Galaxies at High Redshifts

One of the most intriguing findings in the study of galaxy evolution over the past decades is the realization that significant numbers of massive galaxies (with stellar masses $\gtrsim 10^{10.5}$ $M_\odot$) ceased their star formation as early as two billion years after the Big Bang, leading to a change in the morphology of star-forming galaxies (SFG) from a disk-shaped structure to an elliptical shape, and a drop in the star-formation rate density at z=2. In this context, a population of highly attenuated and massive SFGs , faint in the optical, named Optically-Faint Galaxies (OFG) were shown to represent a crucial population for unraveling the mechanisms driving the transition from vigorous star formation to quiescence as they are the progenitors of the massive and passive galaxies already in place around cosmic noon.
Thanks to JWST, we can now spatially resolve the build up in mass of SFGs even when they are shrouded in dust and therefore shed light on the internal structures, and internal quenching mechanisms taking place in the early Universe.

In the work that I will present, I investigate the radial distribution of stellar mass, star-formation rate (SFR) and dust attenuation (Av) of a mass-complete sample of 150 SFGs with $\log(M/M\star) > 9.6$ including 12 OFGs at z=3-4 using the outstanding spatial resolution of the JWST/NIRCam in the CEERS field. This study offers insights into both the integrated and resolved properties of massive SFGs, while also emphasizing the distinctiveness and the role of OFGs in the quenching process leading to the formation of massive elliptical galaxies. In particular, I will show that OFGs exhibit a steeper distribution of mass and SFR toward the core compared to typical SFGs. Furthermore, the Av profiles of galaxies more massive that the so called "critical mass" (~$10^{10.5}$ $M_\odot$) defining the Star-Forming/Quiescent bimodality in the local Universe, show similarity to that of OFGs. These results are emphasizing the connection between these two populations and therefore shedding light on a plausible quenching mechanism of massive SFGs where the OFG-phase is the ultimate contraction of the star-forming region preceding quenching.

Finally, I will discuss ideas of projects that would take advantage of the combination of the combined ELT and JWST spatial resolutions to unveil spatially resolved properties of massive galaxies at high redshifts. This synergy will provide us with detailed information on the morphology, the dynamics, and the spatially resolved star-formation history of galaxies at these redshifts that is key to totally understand galaxy evolution.