

## Inside-out growth in the early Universe: a core in a vigorously star-forming disc

How do the morphologies of the most distant high- $z$  galaxies evolve from cosmic dawn to the present-day? How do they build up mass and structure and what can this tell us about bulge growth, structure formation, and Early-type galaxy formation? These questions are of vital importance to research not only with JWST, but also the upcoming ELT.

I will start to address these questions using the JADES survey, the most extensive extragalactic survey with JWST. I will present spatially resolved photometric results for a spectroscopically confirmed, redshift 7.4 galaxy with a compact central core (proto-bulge) and a strongly star-forming disc. I will explore the stellar population properties of these components and show that the radial profile of the specific star formation rate of this galaxy is sharply rising (approximately 1dex within the central 1kpc) implying rapid inside-out growth within the first 700Myrs of the universe's existence. I will also show how, despite being 1000 times less massive than present day elliptical galaxies, the central stellar mass surface density is within 0.2-0.3dex of present day massive ellipticals, and that the expected size evolution of the galaxy would see it, by redshift 2, reaching the quiescent (early-type) population, suggesting it likely to be a progenitor to these well-studied massive quiescent (early-type) ellipticals.