

Impact of star-formation histories and dust on the selection of quiescent galaxies with JWST/MIRI

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Understanding how star formation history (SFH) models influence galaxy evolution is still a major challenge, especially for quiescent galaxies (QGs). SFH dictates not only stellar mass assembly, but also governs quenching pathways and timescales. JWST's unprecedented sensitivity enables us to resolve discrepancies in SFH modelling, particularly for recently discovered dust-rich QGs at high redshifts ($z \sim 3$), where near- and mid-infrared (NIR and MIR) emission plays a crucial role.

I present a comprehensive analysis of the impact of various SFH models, including non-parametric approaches, on the QGs, including dust-attenuated ones. Using a sample from the CEERS survey detected with NIRCам and MIRI up to $z \sim 6$, I have reconstructed SFHs by integrating UV-MIR photometry. This enabled me to constrain quenching timescales and evaluate the influence of MIRI detections on QG selection and dust properties. I quantified the effects of SFH on the physical properties and selection of QGs. I will discuss the reliability of SFH recreated with photometry alone in recovering quenching-related timescales.

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