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Unveiling the hidden activity in high-z massive star-forming galaxies

Assessing the impact of dusty galaxies to the cosmic star formation rate density (SFRD) is crucial for our understanding of galaxy evolution. Recently ALMA blind surveys have revealed the existence of galaxies unseen from the deepest UV to near-IR images ("HST-dark"), showing a counterpart only in Spitzer/IRAC. The finding of HST-dark galaxies indicates the existence of a prominent population of dusty star forming galaxies at z >2-3, significantly contributing to the SFRD at highz. They can be the high-z massive star-forming population missed by previous surveys, progenitors of massive ellipticals. Their existence seriously challenges the current galaxy formation theories, that underpredict the number of such massive and star-forming galaxies at high-z. MAVIS, by providing the deepest optical images ever obtained for point sources will allow to identify these high-z obscured "HST-dark" galaxies in the optical (or to put more stringent constraints on their SEDs), in order to understand their nature (and possibly their morphology) and their role in early galaxy evolution.

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