Galaxy Stellar Mass Assembly at High z

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Abstract

Over the last decade, increasingly ambitious blank galaxy surveys conducted at near- and mid-infrared wavelengths have allowed us to investigate the process of galaxy stellar mass assembly over the first few billion years of cosmic time. In this talk, I will briefly review our progress on this topic and argue that, in spite of the inevitable uncertainties that still exist in high-z galaxy studies, some clear consensus is starting to emerge in the field. I will also discuss the presence of massive galaxies at $z > 5$, whose systematic study is becoming possible only now thanks to the availability of ultra-deep near-infrared data over large areas of the sky, and the plausible tension with galaxy formation models. Finally, I will conclude on how future infrared telescopes, particularly the *James Webb Space Telescope* and *Euclid*, will be crucial to provide a clear picture of galaxy stellar mass assembly since the epoch of reionisation.