The Role of Starbursts Across Cosmic Time

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Abstract

The driving mechanism of starbursts (i.e. galaxies that lie significantly above the 'main sequence') and their contribution to the SFR density of the Universe are actively debated. In this talk, I will first argue that contrary to the conventional wisdom and unlike in the local Universe, high-redshift ($z \sim 2-3$) ultraluminous infrared galaxies are not necessarily starburst-driven. Part of the reason is that because of increased gas accretion rates at $z \sim 2-3$, the normalization of the main sequence is greater than at z = 0. Thus, even quiescently star-forming galaxies can have SFRs of hundreds of solar masses per year. I will then show that this evolution of the main sequence is reproduced in the state-of-the-art cosmological hydrodynamical simulation *Illustris*. I will finish by discussing what *Illustris* can and cannot tell us about the driving mechanism and role of starbursts in the Universe.