

X50a Impact of mergers on star formation and AGN activity in the HSC-SSP

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Galaxy interactions and mergers are not only the fundamental process of structure growth in the context of galaxies, but they also are considered to be a driver for numerous processes pertaining to galaxy evolution. When galaxies interact and merge, gas inflows towards the circumnuclear regions of the primary galaxy, which can trigger numerous galaxy evolution-related processes such as star formation and accretion onto supermassive blackholes and subsequent fueling of active galactic nuclei (AGN) activity. However, the relative role of galaxy mergers towards these processes is still heavily contested. In this work, we conduct a quantitative investigation on the role that mergers play in both star formation enhancement and AGN activity, using galaxies from the HSC-SSP. Merger galaxies are identified using a machine learning framework, through fine-tuning of the pre-trained deep representation learning model Zoobot (Walmsley et al. 2023). AGN properties are obtained based on the results of the full spectral fitting code PROSPECT (Robotham et al. 2020). We present our findings on the connection between mergers and star formation, as well as mergers and AGN activity.