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New robust merger rates at intermediate redshifts using DEVILS

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Mergers are fundamental to our understanding of the processes that drive the evolution of the structure and morphology of galaxies, star formation, AGN activity, and the redistribution of stellar mass in the Universe. Therefore, determining the fraction and properties of mergers across cosmic time is crucial for understanding the formation of the Universe we observe today. There are multiple techniques for identifying mergers at different stages of their interaction, each providing its insights and challenges. One such technique identifies pre-merger galaxies by selecting galaxy pairs that are close in both projected spatial separation and radial velocity. While robust, this method requires spectroscopic samples to be highly complete and has so far been limited to the relatively local Universe ($z < 0.2$, e.g., from GAMA). In this work, I will present new, robust estimations of major close-pair fractions and rates at $0.2 < z < 0.9$, derived from the highly complete Deep Extragalactic VIsible Legacy Survey (DEVILS), and I will compare our estimates to predictions from hydrodynamical simulations. I will discuss how these findings contribute to our understanding of galaxy evolution during this critical epoch and how they help bridge our knowledge of merger rates at $z < 1$ with future studies using the next generation of galaxy redshift surveys.

Author: FUENTEALBA FUENTES, Melissa (The University of Western Australia)

Co-authors: DAVIES, Luke (ICRAR-UWA); ROBOTHAM, Aaron; BELLSTEDT, Sabine (UWA)

Presenter: FUENTEALBA FUENTES, Melissa (The University of Western Australia)

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