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MODELLING STELLAR CLUSTER POPULATIONS ALONGSIDE THEIR HOST GALAXIES IN A COSMIC ENVIRONMENT

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Stellar cluster populations in the Local Universe show a wide range in properties, suggesting that these objects form via a unique physical channel, and that their demographics are shaped by their formation and evolution in an evolving cosmic environment. This scenario links the current cluster formation sites in the disks of the the Antennae galaxies to the old GC population that mostly populates the halo of the Milky Way, implying that their evolution is tightly coupled to that of their host galaxy. To understand the observed cluster populations, it has become necessary the use of numerical simulations that can model the co-formation and evolution of stellar clusters alongside their galactic environments over a Hubble time. In this talk, I will explore different numerical approximations that allow us to model the co-formation and evolution of star clusters and their host galaxies. Lastly, I will show that GC populations emerge self-consistently in this scenario after 10 Gyr of co-evolution with their host galaxy and I will briefly discuss how cluster demographics can be used as diagnosis tools for baryonic models in galaxy formation simulations.

