observational constraints on the role of galaxy mergers and interactions in galaxy assembly. The Rubin Observatory, which is optimised to deliver fast, wide field-of-view imaging, will enable deep and unbiased observations over the 18,000 square degrees of the Legacy Survey of Space and Time (LSST), resulting in samples of potentially of millions of objects undergoing tidal interactions.

Using realistic mock images produced with state-of-the-art cosmological simulations we perform a comprehensive theoretical investigation of the extended diffuse light around galaxies and galaxy groups down to low stellar mass densities. We consider the nature, frequency and visibility of tidal features and debris across a range of environments and stellar masses as well as their reliability as an indicator of galaxy accretion histories. We consider how observational biases such as projection effects, the point-spread-function and survey depth may effect the proper characterisation and measurement of tidal features, finding that LSST will be capable of recovering much of the flux found in the outskirts of L* galaxies at redshifts beyond local volume. In our simulated sample, tidal features are ubiquitous In L* galaxies and remain common even at significantly lower masses (M*>10^10 Msun). The fraction of stellar mass found in tidal features increases towards higher masses, rising to 5-10% for the most massive objects in our sample (M* ~10^11.5 Msun). Such objects frequently exhibit many distinct tidal features often with complex morphologies, becoming increasingly numerous with increased depth. The interpretation and characterisation of such features can vary significantly with orientation and imaging depth. Our findings demonstrate the importance of accounting for the biases that arise from projection effects and surface-brightness limits and suggest that, even after the LSST is complete, much of the discovery space in low surface-brightness Universe will remain to be explored.

[구 GC-06] Probing neutral gas clouds and associated galaxies in the early universe

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Neutral (HI) gas clouds associated with galaxies are responsible for fuelling the star-formation in the universe. In literature, the extremely strong damped Lyman-alpha absorbers (or ESDLAs) have been known to be sensitive to the effects of HI-H2 transition and star-formation in galaxies. Yet, ESDLAs are rare to probe due to the smaller cross section they subtend on the sky (similar to galaxies).

In my talk, I will focus primarily on my study of the nature of ESDLAs that are observed as absorption signature along the line-of-sight (LOS) of a quasar (QSO). I will further look at the HI-H2 transition and interesting results relevant to diffuse molecular gas and the multi-phase medium (gas in different ionization states) that are associated with ESDLAs.

Furthermore, I will also discuss how the ESDLA environments differ from the high star-forming and molecular environments detected in blind optical and radio surveys consecutively.

[구 GC-07] Tracing the first galaxies with the James Webb Space Telescope

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I will start with presenting new results on the stellar populations of galaxies at a redshift of z=9-11, when the universe was only a few hundred million years old. By combining Hubble Space Telescope observations with Spitzer imaging data, I will show how challenging it is currently to measure basic physical properties of these objects such as star-formation rates, stellar masses and stellar ages. In particular, the current measurements greatly depend on the assumptions (priors) for the spectral energy distribution modeling. Finally, I will discuss how the James Webb Space Telescope (JWST) will revolutionize this field next year and allow us to probe and characterize the first generation of galaxies in much greater detail. Specifically, I will present an overview of the JWST Advanced Deep Extragalactic Survey (JADES), a joint program of the JWST/NIRCam and NIRSpec Guaranteed Time Observations (GTO) teams involving 950 hours of observation.

[구 GC-08] Large Scale Distribution of Globular Clusters in the Coma Cluster

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Coma cluster (Abell 1656) is one of the most massive local galaxy clusters such as Virgo, Fornax, and Perseus, which holds a large collection of globular clusters. Globular cluster systems (GCSs) in a galaxy cluster tell us a history of hierarchical cluster assembly and intracluster GCs (ICGCs) are known to trace the gravitational potential of the galaxy cluster.