explained away by differing dust fraction, suggesting there are real differences in their stellar populations. SFRs derived from SED-fitting tend to be higher in unrelaxed systems. This could be partly because there is a greater fraction of BGGs with non-elliptical morphology, but also because unrelaxed systems are expected to have larger numbers of mergers, some of which may bring fuel for star formation. The SED-fitted stellar metallicities of BGGs in unrelaxed systems also tend to be higher, perhaps because the building blocks of the unrelaxed systems were more massive and had more time to enrich themselves. We find that the △M12 parameter is the most important parameter behind the observed differences in the relaxed/unrelaxed groups. We also find that groups selected to be unrelaxed using our criteria tend to have higher velocity offsets between the BGG and their group.

[초 GC-07] The rise and fall of dusty star formation in (proto-)clusters

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The formation and evolution of galaxies is known to be fundamentally linked to the local environment in which they reside. In the highest-density cluster environments, galaxies tend to be more massive, have lower star formation rates and dust content, and a higher fraction have elliptical morphologies. The stellar populations of these cluster galaxies are older implying that they formed the bulk of their stars much earlier and have since evolved passively. Quantifying the specific environmental factors that contribute to shaping cluster galaxies over the Hubble time and measuring their early evolution can only be accomplished by directly tracing the galaxy growth in young clusters and forming porto-clusters. In this talk, I will present a novel technique designed to map out the total dust obscured star formation relative to where existing stars lie. I will demonstrate that this technique can be used 1) to determine if/where/when the activity is heightened or suppressed in dense cluster environment; 2) to measure the total mass and spatial distribution of stellar populations; and 3) to better inform theoretical models. Our ongoing work to extend this analysis out to protoclusters (z~2-4) will be discussed.

[박 GC-08] Environments of Galaxies and Their Effects on Galaxy Properties

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In the history of universe, galaxies are consistently affected by surrounding medium and neighbor galaxies. These effects control galaxy evolution, making properties of galaxies diverse and dependent on environments. We investigate environments of various types of galaxies and how they affect galaxy properties, such as bar structures and galaxy sizes, etc. First, we present the observational evidence that bars can form from a cluster-cluster interaction. The evidence indicates that bars can form due to a large-scale violent phenomenon, and cluster-cluster interaction should be considered as an important channel for bar formation. Second, we discover for the first time that local early-type galaxies heavier than 1011.2 Msol show a clear environmental dependence in mass-size relation, in such a way that galaxies are as much as 20 - 40% larger in densest environments than in underdense environments. This result suggests that mergers played a significant role in the growth of massive galaxies in dense environments as expected in theory. Lastly, we investigate environments of the most massive galaxies and extremely massive quasars. By doing so, we find that massive galaxies are a much better signpost for galaxy clusters than massive quasars.

[구 GC-09] Searching for Dwarf Galaxies in Deep Images of NGC 1291 obtained with KMTNet

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We present newly discovered dwarf galaxy candidates in deep wide-field images of NGC 1291 obtained with KMTNet. We identify 15 dwarf galaxy candidates by visual inspection within the virial radius of NGC 1291. Using imaging simulations, we demonstrate that our imaging data is complete up to 26 mag arcsec^{-2} or −10 abs.mag with > 70% of the completeness rate. We also apply automated detection method to find the dwarfs. However, the completeness and the reliability are relatively low compared to the visual inspection. We find that