This flow of cool gas may fuel the supermassive black hole embedded in the brightest cluster galaxy, leading to the activation of the central AGN. Indeed, we find a parsec-scale bipolar jet feature in the center of A1644-S in our recent KaVA observation, which implies that its central AGN is likely to have been (re)powered quite recently. In order to verify the hypothesis that cooling gas flow in the cluster core can (re)activate the central AGN, we probe the cold gas properties of the central 1 kpc region of A1644-S using the archival VLA and ALMA data. Based on the spatially resolved morphology and kinematics of HI and CO gas, we challenge to identify inflow/outflow gas streams and clumps. We study the role of circumnuclear cool gas in fueling the centrally located cluster AGN in the cool-core environment. We also discuss how the feedback due to the (re)powered AGN affects the surrounding medium.

[구 GC-05] Bar Formation and Enhancement of Star Formation in Disk Galaxies in Interacting Clusters

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A merger or interaction between galaxy clusters is one of the most violent events in the universe. Thus, an interacting cluster is an optimum laboratory to understand how galaxy properties are influenced by a drastic change of the large-scale environment. Here, we present the observational evidence that bars in disk galaxies can form by cluster-cluster interaction and the bar formation is associated with star-formation enhancement. We investigated 105 galaxy clusters at 0.015<z<0.060 that are detected from the Sloan Digital Sky Survey data, and identified 16 interacting clusters. We find that the barred disk galaxy fraction is about 1.5 times higher in interacting clusters than in clusters with no obvious signs of interaction (42% versus 27%). For disk galaxies with 10.0<logMstar<10.4, the bar formation is accompanied by enhancement of star formation, so that the fraction of star-forming galaxies is about 1.2 times higher in interacting clusters than in non-interacting clusters. Our results indicate that cluster-cluster interaction is an important mechanism that can induce bars and star formation in disk galaxies.

[구 GC-06] YZiCS: On the Mass Segregation of Galaxies in Clusters

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Mass segregation, a tendency of more massive galaxies being distributed closer to the cluster center, is naturally expected from dynamical friction, but its presence is still controversial. Using deep optical observations of 14 Abell clusters (KYDISC) and a set of hydrodynamic simulations (YZiCS), we find in some cases a hint of mass segregation inside the virial radius. Segregation is visible more clearly when the massive galaxy fraction is used instead of mean stellar mass. The trend is more significant in the simulations than in the observations. To find out the mechanisms working on mass segregation, we look into the evolution of individual clusters simulated. We find that the degree of mass segregation is different for different clusters: the trend is visible only for low-mass clusters. We compare the masses of galaxies and their dark haloes at the time of infall and at the present epoch to quantify the amount of tidal stripping. We then conclude that satellites that get accreted at earlier epochs, or galaxies in more massive clusters go through more tidal stripping. These effects in combination result in a correlation between the host halo mass and the degree of stellar mass segregation. This is a work submitted to The Astrophysical Journal (under review).

[구 GC-07] Surface Brightness Fluctuation of Normal and Helium-enhanced Simple Stellar Populations

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