In this talk, we present the light curves of two SNe IIP, SN 2014cx (NGC337) and SN 2017eaw (NGC6946), using our IMSNG data. A newly developed technique, the Photometric Color Method (PCM), employs only photometric data to estimate distances for SNe IIP. We present the distances to our targets measured through PCM and compare this to that of obtained via other methods.

[구 GC-03] A Search for Low Surface Brightness Dwarf Satellite Galaxies in Low Density Environments Using IMSNG

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Searching for low surface brightness (LSB) dwarf galaxies in low density environments (isolated and group) can help us resolve the discrepancy between observation and theory known as the 'missing satellite' problem. They are also important to study the evolution of low mass galaxies in these environments. Although the number of dwarfs in such environments is rapidly increasing in many recent studies, it is still not easy to characterize their general properties. Motivated by this, we present preliminary results of our search for LSB dwarf galaxies around 60 nearby galaxies (D<50Mpc) using deep optical images. Imaging data from Maidanak Astronomical Observatory (MAO) in Uzbekistan as a part of Intensive Monitoring Survey of Nearby Galaxies (IMSNG; Im in prep.) and other archival data are used to find previously unknown LSB dwarf galaxies. Extended LSB sources (central surface brightness μ_0 > 23 mag/arcsec^2) are first selected in the μ_0 - magnitude plane (Rines & Geller 2008). The dwarf galaxy candidates are chosen by visual inspection. We discuss whether these candidates are actual satellite galaxies, by measuring the projected number densities in group environments and in the field. Also, their structural and photometric properties are compared with those of previously discovered dwarf galaxies in the literature.

[구 GC-04] Luminosity Distribution of Dwarf Elliptical-like Galaxies

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We present the structural parameters of ~ 910 dwarf elliptical-like galaxies in the local universe ($z \lesssim 0.01$) derived from the r−band images of the Sloan Digital SKy Survey (SDSS). We examine the dependence of structural parameters on the morphological types (dS0, dE, dEbc, dSph, and dEblue) and the environment. There is not much difference in the structural parameters among the five subtypes but the mean surface brightness within the effective radius (<μe>) of dSph galaxies is clearly different from that of other subtypes. The frequency of disk features such as spiral arm, bar, lens, and rings strongly depends on the morphology of dwarf elliptical-like galaxies with no disk features in dSph galaxies. The absence of disk features and the low surface brightness of dSph galaxies are thought to be closely related to their low mass which leads to different evolution from other subtypes of dwarf elliptical-like galaxies. Density Environments Using IMSNG

[구 GC-05] WITNESSING DISSOLUTION OF A STAR CLUSTER IN THE SEXTANS DWARF GALAXY

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We report a possible discovery of a relic of a dissolved star cluster in the Sextans dwarf spheroidal galaxy. Using the hk index (≡ (Ca-b)-(b-y)) as a photometric metallicity indicator, we have successfully discriminated the metal-poor and metal-rich stars in the galaxy and found an unexpected number density peak of metal-poor stars near the galaxy center. The analysis of color-magnitude diagrams reveals that they appear to be originated from an old, metal-poor globular cluster which might be slightly farther than the bulk of field stars in the galaxy. This supports the presence of the star cluster remnants in the galaxy which have been suggested by previous studies. If confirmed, dissolution of a star cluster provides a piece of evidence of a cored dark-matter halo profile for the Sextans dwarf galaxy.

[구 GC-06] Spectral Analysis of the Seyfert Galaxy NGC 4051 and Mrk 79

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We study the kinematical properties of the Seyfert galaxy, NGC 4051 and Mrk 79. The data

used in this study had been observed with OASIS spectrometer at CFHT 3.6m telescope using O300 grism, MR1. The wavelength coverage is 4760Å -5558Å, which includes emission lines, Hβ4861Å, [OⅢ]4959Å, and [OⅢ]5007Å. We observe that forbidden lines have both narrow and broad components. Radial velocity of NGC 4051 is blue-shifted, perhaps due to the z value derived by the earlier studies, 0.002336. We use the revised z, 0.002099, according to the radial velocity of the central spectrum. NGC 4051 is face-on galaxy without rotation observed. Radial velocity of Mrk 79 shows a rotation characteristic in narrow components, relative to PA = 160°, red-shifted to north-west, and blue-shifted to south-east. In the [OⅢ] broad components, blue-shifted points are observed at the place at 2 arcsec apart from the center of Mrk 79 to north-west, which are likely to be gas outflow.

[구 GC-07] Spin evolution of Horizon-AGN early-type galaxies

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The differential rotational properties of early-type galaxies (ETGs) revealed by integral field spectroscopy surveys is arguably one of the most exciting findings in the galaxy evolution study during the past decade. Numerical studies have shown that galaxy mergers under various configurations can reproduce the observed distribution of ETG spin. However, we suggest an alternative scenario for the spin evolution of a large fraction of ETGs. Using the Horizon-AGN simulation, we follow the spin evolution of 10037 color-selected ETGs more massive than 1010 Msun that are divided into four groups: cluster centrals (3%), cluster satellites (33%), group centrals(5%), and field ETGs (59%). We find a strong mass dependence of the slow rotator fraction, fSR, and the mean spin of massive ETGs. Although the environmental dependence is not clear in the fSR, it is visible in the mean value of the spin parameter. The environmental dependence is driven by the satellite ETGs whose spin gradually decreases as their environment becomes denser. Galaxy mergers appear to be the main cause of total spin changes in 94% of central ETGs of halos with Mvir > 1012.5 Msun, but only 22% of satellite and field ETGs. We find that non-merger induced tidal perturbations better correlate with the galaxy spin-down in satellite ETGs than mergers. Given that the majority of ETGs are not central in dense environments, we conclude that non-merger tidal perturbation effects played a key role in the spin evolution of ETGs observed in the local (z < 1) universe.

[구 GC-08] On the origin of gas deficient galaxies in galaxy clusters: insights from cosmological hydrodynamic simulations

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Galaxies associated with massive groups/clusters are normally gas deficient in contrast to field galaxies. HI observations on such galaxies have revealed signs of violent gas stripping, the direct evidence of the environmental effect. At the same time, the notable number of passive galaxies at the cluster outskirts indicates the presence of pre-processing that makes galaxies gas-poor before entering clusters. We investigate the possible channels for the production of the gas deficient galaxies using the state-of-the-art cosmological hydrodynamic zoom-in simulations of 16 clusters (Choi&Yi). We find cluster effect and pre-processing together play an important role in producing the gas-poor galaxies and in both cases gas loss qualitatively agrees with the ram pressure stripping description. Among the currently gas-poor cluster galaxies, 34% are pre-processed before the cluster infall. They are mainly satellites that have undergone ram pressure stripping in group halos. 43% deplete quickly after arriving at cluster during their first approach to the center. Some of them are group halo satellites low in the gas at the infall compared to galaxies directly coming from the field. 24% retain gas even after their first pericentric pass mainly because they are falling into low mass clusters and/or they have a circular orbit that minimizes the ram pressure