

around or within Virgo. Our results strongly suggest that substructures can play important roles in galaxy evolution while galaxies are falling to the cluster.

**[포 GC-19] A pilot study of dense molecular gas in a Virgo spiral using a KVN single-dish**

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NGC 4402 is a spiral galaxy located in the Virgo cluster. It is undergoing active HI gas stripping due to the strong ICM pressure, showing evidence for recent quenching of star formation. Its CO disk is also highly disturbed as HI, yet unlike HI disk, no sign of significant molecular gas stripping is found. Aiming to better understand how atomic gas stripping and disturbed molecular gas result in star formation quenching, we probe properties of molecular gas in the densest forms. As a pilot study, we observed HCN (1-0) and HCO+ (1-0) in the center of NGC 4402 using one of the Korean VLBI Network (KVN) antennas located at Yonsei site. In this work, we present the result from the KVN single-dish observations and discuss its implications.

**[포 GC-20] The Contribution of Mergers on Star Formation in Nearby UV-Bright Galaxies (별탄생 은하의 별 생성에 대한 병합 작용의 기여도 연구)**

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Star formation in galaxies is one of the key factors in galaxy evolution. It is believed that star formation is triggered and enhanced by mergers among galaxies or secular evolution. However, how much these two mechanisms contribute on star formation is not well known yet. Recently, many other studies show observational evidences of faint merger features(tidal tails, stellar streams) around nearby galaxies with deep optical imaging. This study aims to investigate the fraction of star forming galaxies exhibiting faint features to total galaxies. We are analyzing samples of 76 star forming galaxies ( $NUV < -18$ ) to find merger features from stacked B, R band frames taken at

Maidanak 1.5m, McDonald 2.1m telescope and g, r frames from Canada-France-Hawaii Telescope (CFHT) MegaCam archival data. With the fraction, we can expect to know the contribution of mergers on star formation to galaxies.

**[포 GC-21] Polarization of Rayleigh Scattered Ly $\alpha$  in Active Galactic Nuclei**

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Active galactic nuclei (AGNs) typically show a non-thermal continuum locally represented by a power-law and many prominent emission lines in the UV and optical regions. AGNs are classified by two types, where Type 1 AGNs exhibit both broad and narrow lines and only narrow lines are observed in Type 2 AGNs. The unification models of AGNs invoke the existence of a molecular torus just outside of the broad line region. In the presence of a high column HI region associated with the molecular torus, we propose that significant fraction of broad line photons near Lyman series can be scattered by atomic hydrogen in the torus. In particular, Ly $\alpha$  being the strongest emission line, strong linear polarization may develop around Ly $\alpha$  through Rayleigh scattering. We adopt a Monte Carlo technique to investigate the polarized transfer of Ly $\alpha$  in a thick HI region with the shape of a torus. We consider the range of HI column density  $N_{\text{HI}} = 10^{20-23}$  with fixed geometric parameters of the torus such as the inner and outer radii and the height. We present the polarized spectra and angular distribution of Rayleigh scattered radiation around Ly $\alpha$ . We find that the Ly $\alpha$  core part is polarized in the direction perpendicular to the symmetry axis whereas in the far wing part it is polarized in the parallel direction. It is concluded that the unification of AGNs implies that Ly $\alpha$  can be uniquely polarized through Rayleigh scattering.

**[포 GC-22] SNU AGN Monitoring Project (SAMP) using reverberation mapping of luminous AGNs**

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