outside the stellar disk and the associated star formation activities, we have observed NGC 4522 in 12CO (1-0) and 13CO (1-0) using the ALMA. We have targeted two regions, one around the center of the galaxy and one centered on the peak of the extraplanar CO, detecting both lines in both regions. Particularly, this is the first case where 13CO gas has been detected outside the stellar disk in a galaxy undergoing ram pressure stripping. In this work, we present preliminary results from the ALMA observations and discuss the evolution of molecular gas properties and star formation activities inside and outside the stellar disk.

[포 GC-08] Near-infrared photometric properties of red-supergiant stars in nearby galaxies : NGC 4214, NGC 4736, and NGC 5194 / NGC 5195

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We study the near-infrared photometric properties of red-supergiant stars (RSGs) in three nearby galaxies located within 15 Mpc: NGC 4214, NGC 4736 and NGC 5194 / NGC 5195. The near-infrared (JHK) imaging data were obtained using the WFCAM detector mounted on UKIRT telescope in Hawaii. We used the DAOPHOT/ALLSTAR pacakge to carry out the photometry. We applied MARCS synthetic fluxes to estimate the effective temperatures and luminosities of the RSGs in all the three galaxies. The results were plotted in the Hertzsprung-Russell(H-R) diagram along with the theoretical evolutionary tracks with different masses. We explore the spatial correlation between the RSGs and H II regions by examing the H-R diagram of the RSGs in the dominant H II regions for each of these three galaxies.

[포 GC-09] Bayesian estimation of kinematic parameters of disk galaxies in large HI galaxy surveys

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We present a newly developed algorithm based on a Bayesian method for 2D tilted-ring analysis of disk galaxies which operates on velocity fields. Compared to the conventional ones based on a chi-squared minimisation procedure, this new Bayesian-based algorithm less suffers from local minima of the model parameters even with high multi-modality of their posterior distributions. Moreover, the Bayesian analysis implemented via Markov Chain Monte Carlo (MCMC) sampling only requires broad ranges of posterior distributions of the parameters, which makes the fitting procedure fully automated. This feature is essential for performing kinematic analysis of an unprecedented number of resolved galaxies from the upcoming Square Kilometre Array (SKA) pathfinders' galaxy surveys. A standalone code, the so-called '2D Bayesian Automated Tilted-ring fitter' (2DBAT) that implements the Bayesian fits of 2D tilted-ring models is developed for deriving rotation curves of galaxies that are at least marginally resolved (> 3 beams across the semi-major axis) and moderately inclined ($20 < i < 70$ degree). The main layout of 2DBAT and its performance test are discussed using sample galaxies from Australia Telescope Compact Array (ATCA) observations as well as artificial data cubes built based on representative rotation curves of intermediate-mass and massive spiral galaxies.

[포 GC-10] An Ultraviolet Study of Star-Forming Regions in M33

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We studied the young stellar populations of star-forming (SF) regions in M33 based on the Galaxy Evolution Explorer (GALEX) ultraviolet (UV) imaging data. The SF regions are defined from far-UV data with various thresholds. We examined the reddening and spatial distribution of hot massive stars within SF regions from Hubble Space Telescope multi-band survey and Local Group Galaxy Survey (LGGS) data. The H-alpha sources from the LGGS are used for comparing with the spatial distribution of SF regions. The GALEX UV flux measurements of SF regions are used to derive their ages and masses. We also estimated the size and density of SF regions. The younger and compact SF regions are often arranged within older and sparser SF complexes. The results allow

us to understand the hierarchical star formation and recent evolution of M33.

[포 GC-11] NIR Spectroscopic Observation of Ultra-Long GRB 111209A and The Early Afterglow

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We observed Ultra-Long GRB 111209A using NASA's 3m InfraRed Telescope Facility (IRTF). The observation was started around 40 min later than T0 = 07:12:08 UT of Swift's BAT, lasted for 24 min. The spectrum was extracted using Spextool package. The NIR SEDs show power law distribution indicating afterglow emission from the GRB according to the fireball model with beta ~ 1.2. Also they do not show thermal emission component compared to the SED of "Christmas burst" GRB 101225A. Because there is no other NIR data with this observation epoch, this data can be compared only with TAROT-R band. It seems NIR data has the same flare which exists in R band as an optical flare.

[포 GC-12] Search for Ultra-faint Dwarfs in the Halo of M60, Giant Elliptical Galaxy in Virgo

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One of the well-known problems in the lambda cold dark matter (ΛCDM) models is a missing satellite problem. The slope of the mass function of low mass galaxies predicted by ΛCDM models is much steeper than that based on the luminosity function of dwarf galaxies in the local universe. This implies that the model prediction is an overestimate of low mass galaxies, or that the current census of dwarf galaxies in the local universe may be an underestimate of dwarf galaxies. Previous studies of galaxy luminosity functions to address this problem are based mostly on the sample of galaxies brighter than Mv ~ -10 in the nearby galaxies. In this study we try to search for ultra-faint galaxies (UFDs), which are much fainter than those in the previous studies. We use multi-field HST ACS images of M60 in the

archive. M60 is a giant elliptical galaxy located in the east part of the Virgo cluster, and hosts a large population of globular clusters and UCDs. Little is known about the dwarf galaxies in this galaxy. UFDs are much fainter, much smaller, and have lower surface brightness than normal dwarf galaxies so HST images of massive galaxies are an ideal resource. We present preliminary results of this search.

[포 GC-13] A Gemini/GMOS-IFU Spectroscopy of E+A Galaxies in the Mid-infrared Green Valley: On the Spatial Distribution of Young Stellar Population

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We present the two-dimensional distribution of stellar populations in five E+A galaxies from GMOS-N/IFU spectroscopy (GN-2015B-Q-15). Numerical simulations demonstrated that E+A galaxies formed by major mergers contain young stellar populations (e.g. A-type stars) that are centrally-concentrated within scales of 1 kpc. However, several IFU studies reported that A-type stars are widely distributed on $\gg$ 1kpc scales. In contrast, Pracy et al. (2013) found a central concentration of A-stars and strong negative Balmer absorption line gradients within 1 kpc scales for local ($z < 0.03$) E+A galaxies. They claimed that previous studies failed to detect the central concentration because the E+A galaxy samples in previous studies are too far ($z \sim 0.1$) to resolve the central kpc scales. To verify Pracy et al.'s argument and the expectation from simulations, we selected five E+A galaxies at $0.03 < z < 0.05$. Furthermore, we selected the targets in the mid-infrared green valley (Lee et al. 2015). Thanks to good seeing ($\sim 0.4'' \approx 0.33$ kpc) of our observation, we are able to resolve the central 1 kpc region of our targets. We found that all five galaxies have negative Balmer line gradients, but that three galaxies have flatter gradients than those reported in Pracy et al. We discuss the results in relation with galaxy merger history.

[포 GC-14] Mass inflow history of satellite systems around a dwarf galaxy

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