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

DooSeok Jung[1], San-Hyun Chun[2], Samyaday Choudhury[3], Young-Jong Sohn[1]
*[1]Department of Astronomy, Yonsei University, 03722, Seoul, Republic of Korea, [2]Astronomy Program, Department of Physics and Astronomy, Seoul National University, 151-742, Seoul, Republic of Korea, [3]Yonsei University Observatory, 120-749, Seoul, Republic of Korea*

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

Se-Heon Oh[1,2] and Lister Staveley-Smith[2]
*[1]Korea Astronomy & Space Science Institute (KASI), [2]International Centre for Radio Astronomy Research (ICRAR), The University of Western Australia, Austrlaia*

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

Yongbeom Kang[1], Soo-Chang Rey[1], and Luciana Bianchi[2]
*[1]Chungnam National University, [2]Johns Hopkins University*

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