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Understanding how ram pressure stripping (RPS) affects the star formation activity of cluster galaxies is one of the important issues in astrophysics. To examine whether we can identify any discernible trend in the star formation activity of galaxies undergoing ram pressure stripping, we study the star formation properties of galaxies in the Virgo cluster for which high-resolution HI images are available. We first classify galaxies in the Extended Virgo Cluster Catalog into different stages of RPS based on their HI morphology, HI deficiency, and location in phase space. We then examine various star formation activity indicators of these galaxies, which include starburstiness, g - r color, and WISE [3.4]-[12] color. No noticeable enhancement in star formation was identified for galaxies undergoing early or active stripping. Our results suggest that star formation activity at best seems to be enhanced locally in such galaxies, making it challenging to detect with integrated photometry. With the combination of HI deficiencies and locations in phase space, we were instead able to capture the overall quenching of star formation activity with increasing degree of ram pressure stripping, which agree with previous studies.

[포 GC-12] Identification Of Jet Components Of CTA 102 On Milliarcsecond Scales Using The iMOGABA Program

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CTA 102, one of gamma-ray bright active galactic nuclei (AGN) has been observed with Korean very long baseline interferometry (VLBI) network (KVN) during the period of 2012 December-2018 May as part of interferometric Monitoring Of Gamma-ray Bright AGN (iMOGABA). Multi-frequency VLBI observations enable us to compare the milliarcsecond(mas)-scale iMOGABA images of relativistic jets with those from the Monitoring Of Jets in AGN with Very long baseline array (VLBA) Experiments (MOJAVE) and the VLBA-Boston University(BU)-BLAZAR programs which use VLBA with its angular resolutions of 0.2-1.3 mas. In spite of the relative larger beam sizes of KVN (1-10 mas), we are able to identify jet components of CTA 102 using the KVN multi-frequency VLBI observations with those resolved with VLBA. Considering an instrumental beam blending effect on the jet component identification, we were able to obtain a blending shift of the core position based on a convolution analysis using the VLBA data. When we apply the core position shift to the KVN images of CTA 102, we find that the identified jet components of CTA 102 from the KVN observations are well matched with those from the VLBA observations. Based on the results of the analysis, we may be able to study the jet kinematics and its correlation with gamma-ray flare activity.

[포 GC-13] Metallicity Gradients of CALIFA Shell Galaxies

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Shells in early-type galaxies are low surface brightness tidal debris, which are wide concentric arcs of overdense stellar regions with large opening angles. The most widely accepted mechanism today for shell formation is the merger scenario, but the dominant merger type producing shells is not clearly understood yet: major/minor and wet/dry mergers. Since shells are regarded as smoking-gun evidence of merging events, detailed understanding of shell galaxies is very useful to constrain the formation process of early-type galaxies. In this study, we investigate the metallicity gradients of eight early-type shell galaxies using CALIFA IFU data to better understand the nature and origins of galaxy shells. We estimate simple stellar population properties out to three effective radius from the measurement of Lick/IDS absorption line indices. We compare the metallicity gradients of shell galaxies with those of normal early-type galaxies in the same mass range. In this presentation, we discuss how much the gradients of shell galaxies are different from those of normal early-type galaxies and what the existence of galaxy shells implies about galaxy formation.

[포 GC-14] The relationship of dense molecular gas and HI/H_2 gas in a MALATANG galaxy, NGC 6946

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We present the results from our comparisons of HCN and HCO+ (J=4-3) with HI and H_2 gas in NGC 6946, a sample from a mapping study of the dense molecular gas in the strongest star-forming galaxies (MALATANG). The MALATANG is one of the JCMT legacy surveys on the nearest 23 IR-brightest galaxies beyond the Local Group, which aims to study the relations of dense molecular gas with more general cool gas such as atomic and molecular hydrogen gas, and star formation properties in active galaxies. In this work, we particularly focus on the comparisons between the JCMT HCN/HCO+ (J=4-3) data and the THINGS HI/the NRO CO (J=1-0) data. We probe the dense molecular gas mass as a function of HI and H_2 mass in different locations in the central ~1.5 kpc^2 region. We discuss how the excess/deficit of HI/H_2 or total cool gas ($HI+H_2$) mass controls the presence and/or the fraction of dense molecular gas.

[포 GC-15] ISM truncation due to ram pressure stripping: Comparisons of Theoretical Predictions and Observations

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It has been proposed by Gunn & Gott (1972) that galaxies may lose their interstellar gas by ram pressure due to the dense intra-cluster medium while falling to the cluster potential. The observational evidence for this process, which is known as ram pressure stripping, is increasing, and it is believed to be one of the key environmental effects that can dramatically change the star formation activity of galaxies and hence their evolution. Intriguingly however, some cases with clear signs of ram pressure stripping are found in the environment which betrays our expectations (e.g. large clustercentric distances), and our understandings to the detailed working principle behind ram pressure stripping seem to be still lacking. As one of the ways to gain more theoretical insights into the conditions for ram pressure stripping process, we have been comparing the gas truncation radius which is predicted based on the simple Gunn & Gott's prescription with what is actually observed in a sample of carefully selected Virgo galaxies. In this work, we present the results of our comparisons between the theoretically predicted truncation radius and the observationally measured truncation radius for individual galaxies in the sample and discuss which additional conditions are needed in order to fully understand the observations.

[포 GC-16] Cool gas and star formation properties of ram pressure stripped galaxy NGC 4522: Insights from the TIGRESS simulation

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NGC 4522 is one of the best-known examples among the Virgo galaxies undergoing active ram pressure stripping. There have been a number of detailed observational and theoretical studies on this galaxy to constrain its stripping and star formation history. However, the impact of ram pressure on the multi-phased ISM, in particular molecular gas which plays an important role in star formation, is still not fully understood. NGC 4522, as a system where the extra-planar molecular gas is identified, is an ideal case to probe in depth how ram pressure affects molecular gas properties. Aiming to get more theoretical insights on the detailed stripping process of multi-phased ISM and its consequences, we have conducted simulations using the TIGRESS which could reproduce the realistic ISM under comparable conditions as NGC 4522. In this work, we compare the fraction of gas mass to stellar mass, star formation rates and gas depletion time scales of NGC 4522 with those measured from the simulations, not only inside the disk but also in the extra-planar space.

[포 GC-17] High-z Universe probed via Lensing by QSOs (HULQ): How many QSO lenses are there?

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Aims. The evolution of scaling relations between