whether the origin of the [P II] knots are SN ejecta or CSM/ISM. For this purpose we have built a family of radiative shock with self-consistent pre-ionization using MAPPINGS 5.1.18, with shock velocities in the range of 100 to 475 km/s. We will compare the observed and modeled line fluxes for different depletion factors.

[포 IM-02] Modeling Grain Rotational Disruption by Radiative Torques and Extinction of Active Galactic Nuclei

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Extinction curves observed toward individual Active Galactic Nuclei (AGN) usually show a steep rise toward Far-Ultraviolet (FUV) wavelengths and can be described by the Small Magellanic Cloud (SMC)-like dust model. This feature suggests the dominance of small dust grains of size a < 0.1 μm in the local environment of AGN, but the origin of such small grains is unclear. In this paper, we aim to explain this observed feature by applying the RAdiative Torque Disruption (RATD) to model the extinction of AGN radiation from FUV to Mid-Infrared (MIR) wavelengths. We find that in the intense radiation field of AGN, large composite grains of size a > 0.1 μm are significantly disrupted to smaller sizes by RATD up to dRATD > 100 pc in the polar direction and dRATD ~ 10 pc in the torus region.

Consequently, optical-MIR extinction decreases, whereas FUV-near-Ultraviolet extinction increases, producing a steep far-UV rise extinction curve. The resulting total-to selective visual extinction ratio thus significantly drops to RV < 3.1 with decreasing distances to AGN center due to the enhancement of small grains. The dependence of RV with the efficiency of RATD will help us to study the dust properties in the AGN environment via photometric observations. In addition, we suggest that the combination of the strength between RATD and other dust destruction mechanisms that are responsible for destroying very small grains of a <0.05 μm is the key for explaining the dichotomy observed "SMC" and "gray" extinction curve toward many AGN.

[포 IM-03] Catalog of the Paα-emitting Sources observed in the Carina Region

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We list up the Paα-emitting sources observed in the Carina Region (l = 276°-296°) using the MIRIS Paα Galactic Plane Survey data. A total of 201 sources are cataloged. Out of them, 118 sources are coincident with those in the WISE H II region catalog. 52 H II region candidates are newly confirmed as definite H II regions by detecting the Paα recombination lines. For the remaining 83 sources, we search the corresponding objects in the SIMBAD database. 26 point-like sources are associated with planetary nebulae or emission-line stars (such as Wolf-Rayet and Blue supergiant stars). Also, we carry out aperture photometry to measure Paα fluxes for the sources that show circular features without overlapping with other bright sources. For the whole Galactic Plane, the complete Paα-emitting source catalog is in progress.

[포 IM-04] Tracing history of the episodic accretion process in protostars

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Low-mass stars form by the gravitational collapse of dense molecular cores. Observations and theories of low-mass protostars both suggest that accretion bursts happen in timescales of ~100 years with high accretion rates, so called episodic accretion. One mechanism that triggers accretion bursts is infalling fragments from the outer disk. Such fragmentation happens when the disk is massive enough, preferentially activated during the embedded phase of star formation (Class 0 and I). Most observations and models focus on the gas structure of the protostars undergoing episodic accretion. However, the dust and ice composition are poorly understood, but crucial to the chemical evolution through thermal and energetic processing via accretion burst. During the burst phase, the surrounding material is heated up, and the chemical compositions of gas and ice in the disk and envelope are altered by sublimation of icy molecules from grain surfaces. Such alterations leave imprints in the ice composition even when the temperature returns to the pre-burst level. Thus, chemical compositions of gas and ice retain the history of past bursts. Infrared spectral

observations of the Spitzer and AKARI revealed a signature caused by substantial heating, toward many embedded protostars at the quiescent phase.

We present the AKARI IRC 2.5-5.0 μm spectra for embedded protostars to trace down the characteristics of accretion burst across the evolutionary stages. The ice compositions obtained from the absorption features therein are used as a clock to measure the timescale after the burst event, comparing the analyses of the gas component that traced the burst frequency using the different refreeze-out timescales. We discuss ice abundances, whose chemical change has been carved in the icy mantle, during the different timescales after the burst ends.

[포 IM-05] Chemical and Kinematic Properties of Sagittarius Stellar Streams

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We use Sloan Digital Sky Survey, Large Sky Area Multi-Object Fibre Spectroscopic Telescope, and Apache Point Observatory Galactic Evolution Experiment data to analyze the kinematic and chemical properties of stellar members in Sagittarius(Sgr) tidal streams. Using distances, positions, proper motions, and angular momenta of stars around the Sgr streams, we gather clean sample of Sgr member stars. We find that the leading arm has different chemical, kinematic, orbital characteristics from those of the trailing arm and the remnant of Sgr. In particular, the leading arm shows relatively lower eccentricity distribution than the trailing arm, suggesting their origin may differ or they have experienced different dynamical evolution, which is in somewhat mystery.

[포 IM-06] Investigation of heating and accretion event of Milky Way disk

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We present preliminary results on the chemical and kinematic analysis of accreted and heated metal-rich (-1.0 < [Fe/H] < -0.3) stars in the Galactic disk. These stars are in the ranges of e > 0.7, -100 < V_ϕ < 100 km/s, and |Z| < 3 kpc, and are presumably heated (accreted) by (from) past merger events such as Gaia Enceladus and Sausage (GSE). These stars are largely separated into two groups based on the level of [α/Fe] and radial velocity dispersion. The first group has low [α/Fe] and high radial velocity dispersion, and the second group shows high [α/Fe] and low radial velocity dispersion. We propose that the first group of stars are accreted from the GSE galaxy, whereas the second group of stars are dynamically heated by the GSE merger event.

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[포 GC-01] Properties of Shocks in Simulated Merging Clusters

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Shocks are induced in the intracluster medium by mergers of subclusters during the hierarchical structure formation of the universe. Radio relics detected in the outskirts of galaxy clusters have been interpreted as diffuse synchrotron emission from cosmic ray electrons accelerated at such merger shocks. Using a set of cosmological hydrodynamic simulations, we study how the properties of merger-driven shocks depend on the parameters such as the mass ratio and impact parameter of mergers. In particular, we examine the distribution of the Mach number and energetics of shocks associated with synthetic radio relics in simulated merging clusters. In this poster, we will present the preliminary results and the implications.

[포 GC-02] How to quantify the similarity of 2D distributions: Comparison of spatial distribution of Dark Matter and Intracluster light

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