spin angular momentum of the disk of the target galaxy decreases by 15 - 20% after a prograde collision. We conclude that the accumulated effects of galaxy-galaxy interactions will play an important role in determining the angular momentum of late-type galaxies at current stage.

성간물질/별생성/우리은하

[포 IM-01] An automated analysis tool for the IR absorption spectra of interstellar ices

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The icy mantles of interstellar grains are developed by the freeze-out of interstellar molecules and atoms onto grain surfaces. The ice molecules become more complex by surface chemistry induced directly by high energy photons or by the thermal energy diffused over heated grain surface. Therefore, the ice composition is an important tracer of physical conditions where the ices form. Ices have been studied via their absorption features against continuum sources, such as young stellar objects or evolved background stars, in infrared wavelengths. The *Spitzer* IRS was the most sensitive spectrometer for the observations of infrared ice absorption features. We has been developing an automated analysis tool for the Spitzer IRS spectra, especially for the 15 μm CO_2 bending mode. The 15 μm CO_2 absorption feature is very useful for the study of accretion process in star formation since its spectral shape varies with thermal condition of the dust grains. Eventually, this tool will cover the whole range of the *Spitzer* IRS spectrum (5~20 μm).

[포 IM-02] Quantifying Variability of YSOs in the Mid-IR Over Six Years with NEOWISE

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Variability in Young Stellar Objects (YSOs) can be caused by time-dependent accretion rates, geometric changes in the circumstellar disks, the stochastic hydromagnetic interactions between stellar surfaces and inner disk edges, reconnections within the stellar magnetosphere, and hot/cold spots on stellar surfaces. We uncover ~1400 variables from a sample of ~5300 YSOs in nearby low-mass star-forming regions using mid-IR light curves obtained from the 5.5-years NEOWISE All Sky Survey. The mid-IR variability traces a wide range of dynamical, physical, and geometrical phenomenon. We classify six types of YSO variability based on their light curves: secular variability (Linear, Curved, Periodic) and stochastic variability (Burst, Drop, Irregular). YSOs in earlier evolutionary stages have higher fractions of variables at all types and higher amplitudes for the variability. Along with brightness variability, we also find a diverse range of secular color variations, which can be attributed to a competitive interplay between the variable accretion luminosity of the central source and the variable extinction by material associated with the accretion process. We compare the variability of known FUors/EXors and VeLLOs/LLSs, which represent two extreme ends (burst versus quiescent) of the episodic accretion process; FUors/EXors have a higher fraction of variables (65%) than VeLLOs/LLSs (41%). Short-term (few day) and long-term (decades) variability, as well as possible AGB contamination in the YSO catalogues, are also discussed.molecules become more complex by surface chemistry induced directly by high energy photons or by the thermal energy diffused over heated grain surface. Therefore, the ice composition is an

[포 IM-03] Dust scattering simulation of far-ultraviolet light in the Milky Way

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We performed three-dimensional Monte Carlo dust scattering radiative transfer simulations for FUV light to obtain dust scattered FUV images and compared them with the observed FUV image