star, lambda Ori. The derived excitation temperature (T_{ex}) using ^{12}CO emission shows a lower median value (20 K) than those of triggered star-forming regions (30 K). The lower MF and T_{ex} support our previous study that star formation was not triggered in the λ Orionis cloud. We aim to further investigate whether the Class 0/I YSOs in the λ Orionis cloud have less circumstellar materials and smaller accretion rates than in other filamentary clouds (e.g., Orion A & B), which might be attributed to negative feedback from the massive star in limiting accretion of protostars

[포 IM-08] The Early Assembly History of the Milky Way with Extremely Metal-Poor ([Fe/H] < -3.0) Stars

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Extremely metal-poor (EMP; [Fe/H] < -3.0) stars are thought to be genuine second-generation of stars because they were born from relatively pristine gas chemically enriched by one or two supernovae. So, the EMP stars presumably originated from outside the Milky Way (MW) are important tracers for the early chemical evolution and assembly history of the MW. In this study, we present the preliminary results on the early assembly history of the MW inferred by associating the dynamical properties of our EMP stars with those of known substructures in the MW. We also explore the star formation history of the progenitor galaxies of our EMP stars by investigating the elemental abundances of the EMP stars associated with the substructure.

[포 IM-09] Grain Growth Revealed by Multi-wavelength Analysis of Non-axisymmetric Substructures in the Protostellar Disk WL 17

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Disks around protostars are the birthplace of planets. The first step toward planet formation is grain growth from μm-sized grains to mm/cm-sized grains in a disk, particularly in dense regions. In order to study whether grains grow and segregate at the protostellar stage, we investigate the ALMA Band 3 (3.1 mm) and 7 (0.87 mm) dust continuum observations of the protostellar disk WL 17 in ρ Ophiuchus L1688 cloud. As reported in a previous study, the Band 3 image shows substructures: a narrow ring and a large central hole. On the other hand, the Band 7 image shows different substructures: a non-axisymmetric ring and an off-center hole. The two-band observations provide a mean spectral index of 2.3, which suggests the presence of mm/cm-sized large grains. Its non-axisymmetric distribution may imply dust segregation between small and large grains. We perform radiative transfer modeling to examine the size and spatial distributions of dust grains in the WL 17 disk. The best-fit model suggests that large grains (>1 cm) exist in the disk, settling down toward the midplane, whereas small grains (~10 μm) well mixed with gas are distributed off-center and non-axisymmetrically in a thick layer. The low spectral index and the modeling results suggest that grains rapidly grow at the protostellar stage and that grains differently distribute depending on sizes, resulting in substructures varying with observed wavelengths. To understand the differential grain distributions and substructures, we discuss the effects of the protoplanet(s) expected inside the large hole and the possibility of gravitational instability.

[포 IM-10] Spiral Magnetic Field Lines in a Hub-Filament Structure, Monoceros R2

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We present the results of polarization observations at submillimeter wavelengths towards Monoceros R2 (Mon R2). The polarized thermal dust emission was obtained from SCUBA-2/POL-2 at 450 ㎛ and 850 ㎛, simultaneously. This observation is a part of the JCMT BISTRO survey project. The polarization angle distributions at 450 ㎛ and 850 ㎛ are similar and the mean value of angle differences at two wavelengths is 5.5 degrees. The Mon R2 is one of massive star-forming regions containing a clear hub-filamentary structure. The hub region shows star formation activities, and surrounding filaments provide channels for matters to move into the hub region. It is not well known the role of magnetic fields in a hub-filamentary structure. Some studies have shown well-ordered polarization segments along a filamentary structure and