across a range of Galactic environments; map the star-formation efficiency (SFE) and dense-gas mass fraction (DGMF) in molecular gas as a function of position in the Galaxy and its relation to the nature of the turbulence within molecular clouds; determine Galactic structure as traced by molecular gas and star formation; constrain cloud-formation models; study the relationship of filaments to star formation; test current models of the gas kinematics and stability in the Galactic center region and the flow of gas from the disc. It will also provide an invaluable legacy data set for JCMT that will not be superseded for several decades. In this poster, we will present the current status of the CHIMPS2.

[포 IM-14] Investigation of the apparent α-bimodality among the galactic bulge stars from the APOGEE database

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Recent investigation of the APOGEE bulge stars by Zasowski et al. (2018) shows a fraction of stars enhanced in O, Ca, and Mg abundances. It is not clear, however, that this apparent α-bimodality is reflecting a real feature or an artifact from spectral fitting. We will report our progress in understanding the nature and reality of this phenomenon. We will also discuss the spread in Na abundance among the inner bulge stars with respect to that observed among disk sample.

[포 IM-15] Effects of radiation-modulated cooling on the momentum transfer from stellar feedback

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Strong radiation fields can change the ionization state of metals and hence cooling rates. In order to understand their effects on the momentum transfer from radiation and supernova feedback, we perform a suite of radiation-hydrodynamic simulations with radiation-modulated metal cooling. For this purpose, we pre-tabulate the metal cooling rates for a variety of spectral shapes and flux levels with the spectral synthesis code, Cloudy, and accurately determine the rates based on the local radiation field strength. We find that the inclusion of the radiation-modulated metal cooling decreases the total radial momentum produced by photo-ionization heating by a factor of ~3 due to enhanced cooling at temperature T~10^3-4 K. The amount of momentum transferred from the subsequent SN explosions, however, turns out to be little affected by radiation, as the main cooling agents at T~10^5-6 K are only destroyed by soft X-ray radiation which is generally weak. We further discuss the total momentum budget in various conditions.

[포 IM-16] Dense Core Formation in Filamentary Clouds: Accretion toward Dense Cores from Filamentary Clouds and Gravitational Infall in the Cores

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Understanding how the filamentary structure affects the formation of the prestellar cores and stars is a key issue to challenge. We use the Heterodyne Array Receiver Program (HARP) of the James Clerk Maxwell Telescope (JCMT) to obtain molecular line mapping data for two prestellar cores in different environment, L1544 in filamentary cloud and L694-2 in a small cloud isolated. Observing lines are ^{13}CO and $C^{18}O$ (3-2) line to find possible flow motions along the filament, ^{12}CO (3-2) to search for any radial accretion (or infalling motions) toward the cores of gas material from their surrounding regions, and HCO^+ (4-3) lines to find at which density and which region in the core gases start to be in gravitational collapse. In the 1st moment maps of ^{13}CO and C18O , velocity gradient patterns implying the flow of material were found at the cores and its surrounding filamentary clouds. The infall asymmetry patterns of HCO+ and ^{13}CO line profiles were detected to be good enough to analyze the infalling motions toward the cores. We will report further analysis results on core formation in the filamentary cloud at this meeting.

[포 IM-17] Discovery of a New Mechanism to Release Complex Molecules from Icy Grain Mantles around Young Stellar Objects

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