

magnetic fields in star-forming regions. Through the polarimetric data of J, H, and Ks bands, we examined the magnetic field structures in the N159/N160 complex. In this presentation, we show complex distribution of the magnetic fields associated with dust and gas structures. We verify the local magnetic fields in each star-forming region, which appear to be related with local environments, such as interior and boundary of shell structure, star-forming HII regions, and boundaries between HII regions and dense dark clouds. We discuss the formation scenario of the N159/N160 complex suggested from the magnetic field structure.

[구 SF-04] Packages of Unified modeling for Radiative transfer, gas Energetics, and Chemistry (PUREC)

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Protoplanetary disks (PPDs) are a natural consequence of star formation and play crucial roles in planet formation. Atacama Large Millimeter/submillimeter Array (ALMA) has provided sub-mm data for the PPDs with a high angular resolution and sensitivity, and it makes us enable to study PPDs in detail. We have developed Packages of Unified modeling for Radiative transfer, gas Energetics, and Chemistry (PUREC), which consists of a self-consistent thermo-chemical model and line and continuum radiative transfer models, in order to interpret and predict the ALMA observations for PPDs. In this talk, we introduce capabilities of PUREC.

[구 SF-05] Sub-mm variability of a YSO (EC53) in Serpens main region : JCMT Transient survey

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Stars form through the gravitational collapse of molecular clouds. However, the rate at which a star gains most of its mass and the physics that drives the main phase of stellar growth is still unclear. The typical luminosity of observed protostars is smaller than what expected from the Shu's inside-out collapse model, which predicts a

constant mass accretion rate. The episodic accretion model has been suggested as a solution of this luminosity problem. The JCMT Transient survey is a long term monitoring program using JCMT/SCUBA-2 to detect accretion variability of protostars in the eight nearby star-forming regions. Recently, we found a rise of the 850 micron flux at a clump in the Serpens main region at the rate of ~17% relative to the mean flux over previous observations. The submm clump is associated with a class I protostar, EC53, which has been reported as a binary system with a periodic variability. In this talk, we will provide a brief overview of the JCMT Transient Survey project, present the detection of the variable source, and discuss about follow-up observations.

[구 SF-06] MIRIS Paschen- α Galactic Plane Survey : Comparison with WISE catalog and IPHAS H α data in Cepheus

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To see scientific potential of MIRIS Paschen- α (Pa α) Galactic Plane Survey (MIPAPS), we have selected a portion, Galactic longitude from +96° to 116°, and inspected Pa α detections for 212 sources in WISE H II region catalog. We also list up 35 Pa α large features and 32 Pa α point-like blobs, which have not been cataloged in WISE catalog. For all the sources, we have performed the photometry of Pa α emission line, and obtained their Pa α intensities and Pa α fluxes. For the quantitative comparison, we also make the H α mosaic image of the same region by using IPHAS data which have been globally calibrated and released recently. Comparing MIPAPS Pa α fluxes with the IPHAS H α fluxes enables us to estimate dust extinction and spectral types of ionizing sources. We present the results for some sources.

우주관측 및 기술

[구 ST-01] Feasibility Study of a Future Korean Space Telescope

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