[구SF-03] "Bluening" in Spitzer/IRAC Bands by Interstellar Extinction

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We analyze the behaviors of reddening vectors in the Spitzer/IRAC photometric system for young stellar objects (YSOs) of different evolutionary stages, masses, and inclinations using the model spectral energy distributions (SED) by Robitaille et al. As reported in visible and near-infrared photometric systems, the magnitudes and colors of YSOs show strong SED dependence and non-linearity. In the [8.0] band where the 9.7 μm interstellar silicate feature plays a significant role in extinction, the effective wavelength shifts "bluewards", not "redwards" as in most, if not all, optical and infrared bands including the other three IRAC bands, as the extinction in Ks increases up to ~2 mag, and then asymptotically reaches a constant value as the extinction further increases. This "bluening" is seen when the YSO is in later evolutionary stage and/or has a stellar mass of ~2 $M_{\odot}$ or greater. In many cases, the reddening vectors in the IRAC color-color diagrams are prominently curved, and in some extreme cases, the colors involving the [8.0] band becomes bluer in the beginning and then becomes redder later as the amount of extinction increases. We also present our "suggested" extinction laws employing the combination of a broken-power law and the 9.7 μm silicate feature, which well reproduce the extinction behaviors observed in the IRAC bands.

[구SF-05] Optical Long-slit Spectroscopy of Parsec-scale Jets

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We present the observational study of parsec-scale jets from YSOs reaching lengths of several arc-minutes. The medium-resolution spectroscopic data were obtained between 6000 - 7000Å with BOAO long-slit spectrograph. By performing multi-position observation, we investigated the physical variation of the jets and the ambient gas along the whole path of the jets. The flux, electron density, ionization fraction, and electron temperature are discussed with the estimated line ratios between from [OI], [NII], Hα and [SII] emission lines. This study carried out with more than 8 jets of YSOs including low- to intermediate-mass stars. We also briefly discuss the kinematics of the outflows using spatial and spectroscopic data.