[구IM-11] A planetary companion around K-giant ε Corona Borealis

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We present high-resolution radial velocity measurements of K2 giant ε CrB from February 2005 to January 2012 using the fiber-fed Bohyunsan Observatory Echelle Spectrograph at Bohyunsan Optical Astronomy Observatory. We find that the RV measurements for ε CrB exhibit a periodic variation of 418 days with a semi-amplitude of 129 m/s. There is no correlation with RV measurements and inhomogeneous surface features by examining chromospheric activity indicator (Ca II H region), the Hipparcos photometry, and bisector velocity span. Thus, Keplerian motion is the most likely explanation, which suggests that the RV variations arise from an orbital motion. Assuming a possible stellar mass of 1.7 $M_{\odot}$, for ε CrB, we obtain a minimum mass for the planetary companion of 6.7 $M_{\rm Jup}$ with an orbital semi-major axis of 1.3 AU, and an eccentricity of 0.11. We support that more massive stars harbor more massive planetary companions in giant hosting planetary companions (Dollinger et al. 2009), as well as, we discuss the frequency of detected planetary companions with the metallicity distribution in giant (Pasquini et al. 2007; Quirrenbach et al. 2011).

[포IM-12] Submillimeter Observations of the Infrared Dark Cloud G049.40-00.01

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Infrared dark clouds(IRDCs) are believed to be the progenitors of massive stars and clusters. We obtained 350 and 850 μm continuum maps of the IRDC G049.40-00.01 using SHARC-II on CSO. Twenty-one dense clumps were identified within G049.40-00.01 based on the 350 μm continuum map with an angular resolution of about 9.6″. We present submillimeter continuum maps and report physical properties of the clumps. The masses of clumps are from 50 to 600 solar mass. About 70% of the clumps are associated with bright 24 μm emission sources indicating protostars. The most massive two clumps show enhanced, extended 4.5 μm emission representing on-going star forming activity. The size-mass distribution of the clumps suggests that many of them are forming high-mass stars. G049.40-00.01 contains numerous objects in various evolutionary stages of star formation, from pre-stellar clumps to H II regions.