

[구EP-03] Observation of transiting exoplanet TrES-2b at Maidanak Observatory in Uzbekistan

Yuna Yang¹, Sang Gak Lee¹, Won Seok Kang¹

¹Department of physics and astronomy, Seoul National University

We observed the transiting exoplanet, TrES-2b, with 1.5m telescope at Maidanak Observatory in Uzbekistan. We observed TrES-2 system for six nights, which contained two orbital periods of the planet. Therefore, we obtained the entire light curve of TrES-2b, which covered not only the whole primary transit containing both ingress and egress part, but also non-transit region. We used both R and Y band filters. Especially, Y filter is used first for transit observation and covers relatively longer wavelength (1.02 μ m of center wavelength), to provide the light curve less affected by limb darkening.

By fitting best model light curve for the obtained one, we determined these observables, transit depth, transit length, and planet's orbital period, which led to the determination of five physical parameters, stellar radius R_* , stellar mass M_* , inclination i , semi-major axis a , and planetary radius R_p . We will discuss of these results.

[구EP-04] A likely exoplanet around F5 supergiant α Persei near the Cepheid instability strip

Byeong-Cheol Lee¹, Inwoo Han¹, Myeong-Gu Park², and Kang-Min Kim¹

¹Korea Astronomy and Space Science Institute, 61-1 Whaam-Dong Yuseong-Gu, Daejeon 305-348, Korea,

²Department of Astronomy and Atmospheric Sciences, Kyungpook National University, Daegu 702-701, Korea

To search for and study the nature of the long-periodic variations of massive stars, we have been carrying out a precise radial velocity (RV) survey for supergiants. Here, we present high-resolution RV measurements of α Per which lies near the Cepheid instability strip from November 2005 to February 2011 using the fiber-fed Bohyunsan Observatory Echelle Spectrograph (BOES) at Bohyunsan Optical Astronomy Observatory (BOAO). The orbital solution yields a period of 129 days, a 2K amplitude of 80 m/s, and an eccentricity of 0.1. Assuming a possible stellar mass of 7.3 M_\odot , we estimate the minimum mass for the planetary companion to be 7.5 M_{Jup} with the orbital semi-major axis of 0.97 AU. We do not find the correlation between RV variations and chromospheric activity indicator (Ca II H & K region). The Hipparcos photometry and bisector velocity span (BVS) do not show any obvious correlations with RV variations. These analyses suggest that α Per is a pulsating supergiant that hosts an exoplanet. If the 129 days variations of α Per do not come from an exoplanet but Cepheid-like pulsations, the theoretical boundary of the Cepheid instability strip may need to be extended to the bluer side.