

[구IGRINS-05] Near-Infrared Spectroscopy and Modeling of Luminous Blue Variables

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We report preliminary results of long-slit near-infrared (NIR) spectroscopy of Luminous Blue Variables (LBVs) with moderate resolution of $R \sim 2400$. We obtained Jshort (1.04–1.26 micron) and Ks (2.02–2.31 micron) band spectra of 4 LBVs and 3 LBV candidates in Southern hemisphere using IRIS2, infrared imager and spectrograph, mounted on the 4-m Anglo-Australian Telescope. All targets are fairly bright in NIR so that we can obtain high signal-to-noise ratio for clear line detection and modeling. They are also widely distributed in the HR diagram so that we can compare the spectral properties of LBVs in different temperature and luminosity ranges. Among them, we present the results of two well-known LBVs AG Car and HR Car. Their spectra show similar properties with hydrogen, He I, and metallic lines such as Fe II and Mg II, most of them in emission. We discuss, in particular, the He I 1.083 micron lines formed in stellar wind because these two LBVs show large variation in their He I line intensities, compared to previous studies. Since the He I 1.083 line is known to be anticorrelated with the photometric variation of LBVs, strong line intensities with P-Cygni profiles in both stars indicate that they are now near the visual minimum phase. We model the obtained spectra using non-LTE atmosphere code CMFGEN of Hillier (1998) to derive stellar parameters such as wind velocity and mass loss rate, and discuss the long-term variability of stellar parameters of these LBVs, deduced from our photometric solution.

[구IGRINS-06] IGRINS를 이용한 정밀 시선속도 측정

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M형 항성 주변의 외계행성 탐색 등을 위하여 근적외선 영역에서 정밀 시선속도 측정에 대한 관심이 근래 증가하고 있다. 이번 발표에서는 IGRINS를 이용하여 정밀 시선속도 측정을 하기 위한 방법과 이를 위한 필요한 일들을 소개하려 한다. 아울러 IGRINS로 정밀 시선속도를 측정하여 할 수 있는 연구 주제도 소개한다.