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Spectral Line Variations of Symbiotic Stars EG And, AG Dra, and BX Mon and Its Interpretation

Tae Seog Yoon[1], Soo Hyun Kim[1], Hyeonwoo Moon[1], Kyu-Seob Kim[1], and Hyungil Oh[1,2]

[1]Department of Astronomy & Atmospheric Sciences, Kyungpook National University, Daegu 702-701, South Korea
email: yoonts@knu.ac.kr
[2]Korea Astronomy and Space Science Institute, Daejeon 305-348, South Korea

Abstract. We present some results obtained by high resolution spectroscopic observations for symbiotic stars EG And, AG Dra, and BX Mon in recent years which were performed with 1.8-m reflector and echelle spectrograph BOES at Bohyunsan Optical Astronomy Observatory, Youngcheon, South Korea. The variations of Hα emission line during a night and the variations of H Balmer lines and He I emission lines among several analyzed lines over months and years are shown and discussed.

Keywords. Symbiotic stars: EG And, AG Dra, BX Mon, Spectral line variations

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In order to investigate any variations of spectral lines for symbiotic stars two methods were adopted. One is to find spectral line variations in a very short time scale such as flickering phenomena by time-series exposures over an observing night. Another is to find line variations in the time scales of months or years.

Through overnight monitoring spectral line variation for a night is detected only for AG Dra among selected symbiotic stars and only from the last frame of Feb. 24, 2008. That frame was taken just before the morning twilight. Overlapped time-series Hα spectra of AG Dra on the night are shown in Figure 1. While Dobrzycka *et al.* (1996) and Sokoloski *et al.* (2001) commented possibilities of flickering phenomena for EG And, AG Dra, and BX Mon, we are not quite successful so far in finding the very short-time variation in spectral lines by overnight monitoring.

Appearance and disappearance of double-peak shape of Hα and Hβ lines are shown for EG And and AG Dra over years, and more prominent at Hα line. Shift of double-peak Hα line and its variation in line intensity and line width are detected for BX Mon. Hα line variation of EG And is shown in Figure 2. Variations of He I λ5875, λ6678, λ7065 lines for AG Dra are shown in Figure 3. The variation pattern of He I λ5875 and λ7065 lines looks similar, but that of λ6678 line is different.

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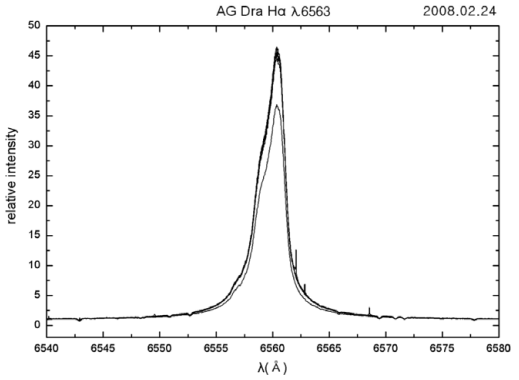

Figure 1. Overlapped AG Dra Hα spectra of Feb. 24, 2008

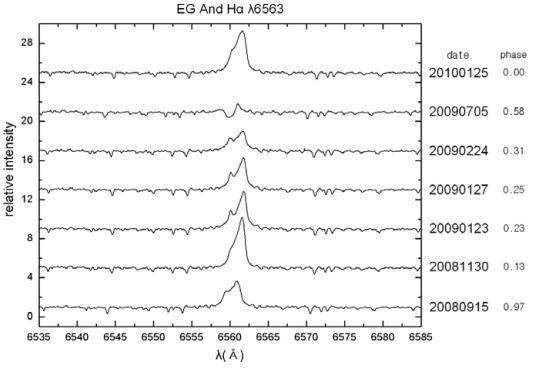

Figure 2. Hα lines of EG And observed from Sept. 2008 to Jan. 2010

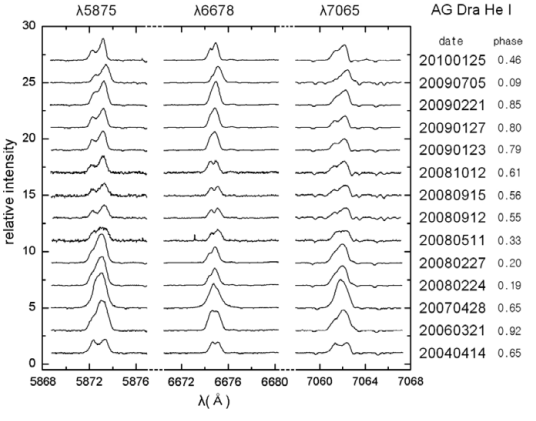

Figure 3. Variations of He I λ5875, λ6678, λ7065 lines of AG Dra

References

Dobrzycka, D., Kenyon, S. J., & Milone, A. A. E. 1996, *AJ*, 111, 414
Sokoloski, J. L., Bildsten, L., & Ho, W. C. G. 2001, *MNRAS*, 326, 553

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