

The IUE spectrum of the Algol type symbiotic star CI Cyg

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The symbiotic star CI Cyg is believed to be an eclipsing binary, consisting of a cool giant of the spectral type M5 giant and a hot component, either a hot compact star or hot accretion disks around a faint star (Period = 855.25 days). We searched a large sample of IUE archival spectra observed during the period between Jan. 1979 and Sept. 1995. Some lines are quite prominent at primary minimum (Phase is determined in the early photometric studies), suggesting that these lines may have been formed in the outer extended ionized nebula ([O III], C III]), while some of other high excitation lines, e.g., He II, shows the opposite, indicating the eclipse of the formation zone is close to the hot ionizing source. Relative to the C III] lines, which shows stable intensities, we derived the other line intensity variation to search alternative mechanism for emission. Quite contrary to the photometric measurement, however, we could not confirm a systematic variation of the emission intensities caused by an orbital motion or eclipsing. This is probably due to the fact that the extended nebula zone responsible for most emission lines has not been eclipsed by a cool giant. The overall conclusion on the IUE spectrum seems confirming that the photo-ionizing hot source is of the accretion disks around a compact star, though. A complex behavior near the orbital phase 0.5 is found from our careful analysis. We investigate whether this results from the eccentric orbital motion or from other cataclysmic events, i.e. outbursts or eruptions. The mass which is accreted onto the hot component is only a fraction of the total amount lost by the cool giant. The typical electron densities derived from the high dispersion Si III] and C III] lines, appear to be around $5 \times 10^5 - 3 \times 10^6 / \text{cm}^3$, which would enable us to guess the mass losing characteristic of the giant. We try to draw a general figure on the dynamical structure of CI Cyg.