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MWC147: A SUSPECT OF A PRE-MAIN SEQUENCE BINARY STAR

MWC147 (HD 259431, SAO 95823, $\alpha_{1950.0} = 6^{\text{h}}30^{\text{m}}19^{\text{s}}.37$ $\delta_{1950.0} = 10^{\circ}21'38''.2$) is embedded in the nebosity of NGC 2247 and is a probable member of the Monoceros R1 association (Halbedel 1989). It is classified as a B6pe star (Finkenzeller and Mundt, 1984), and has a visual magnitude of $V = 8.7$ (Terra-Negra *et al.*, 1994).

Being classified as a Herbig Ae/Be star, MWC147 has been observed since 1992 in a systematic survey that is being conducted at the Astrophysical National Laboratory (LNA - Brazil), aiming at investigating the properties of these stars. The spectra were obtained using the Coudé focus in the 1.6 m (LNA, Brazil, $0.12 \text{ \AA}/\text{pixel}$), and in one mission, the 1.4 m CAT (ESO, Chile) was used. MWC147 was observed in the visible region of the spectrum ($\text{H}\alpha$) and showed a double peak emission profile (Fig. 1).

It is clearly seen that the emission $\text{H}\alpha$ profiles show a transit. This behavior might suggest that this star is a member of a binary system.

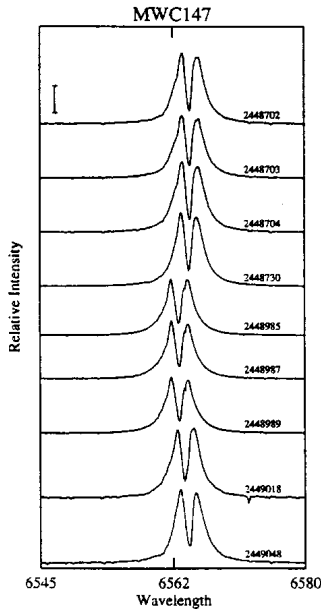


Figure 1. Spectra of MWC 147 showing the variation in the center of the $\text{H}\alpha$ emission lines. The vertical bar (top and left) indicates five units in relative intensity, continuum intensity for each spectrum is one. The Julian date of observations is indicated in each spectrum.

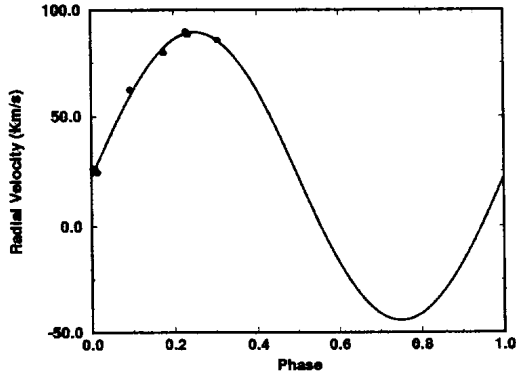


Figure 2. Radial velocity of MWC 147.

A preliminary analysis of the variations of the radial velocity, assuming a circular orbit (Fig. 2), give the following orbital parameters:

$$\text{Period} = 365 \pm 3 \text{ days}$$

$$e = 0$$

$$\omega = -$$

$$K = 67 \pm 2 \text{ km/s}$$

$$V_{CM} = 23 \pm 2 \text{ km/s}$$

These results are first approximation because of the small amount of the observed points (only 9), but the period found is in agreement with the transit showed by the spectral lines.

Further observations are needed in order to confirm the obtained orbital parameters.

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