

SEARCH FOR APSIDAL MOTION IN THE ECLIPSING VARIABLE V356 SGR

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Abstract

Apsidal motion in this eclipsing binary was looked for but cannot be confirmed due to the uncertainties in the available data. The search is complicated by asymmetrical secondary minima. More observations are needed, especially photoelectric.

The variability of the Algol star V356 Sgr was discovered in 1928 by Kanda at Tokyo (Kanda 1930a,b). Shortly later, Voute (1932) reported photographic observations using plates taken for a study of WZ Sgr. He pointed out that the light curve of the secondary minimum is asymmetrical. I suggested the possibility of apsidal motion in this star based on my own observation in 1972 (Sakuma 1972).

I have obtained 323 visual and 73 photographic observations of this star since 1971. I have also examined the times of principal minima as determined from data obtained by Dworak (1977), Gaposchkin (1953), Hall *et al.* (1981), Kanda (1930a,b), Popper (1955), Sakuma (1972), and Voute (1932) relative to Popper's elements in the 1970 General Catalogue of Variable Stars (Kukarkin *et al.* 1970):

$$m_1 = \text{JD } 2433900.827 + 8.89610E.$$

Gaposchkin's (1953) estimates of brightness were made on photographs spanning a half-century between 1890 and 1940, so they can be used only to detect variations with periods greater than several centuries.

I could not determine the phase of secondary minimum from my own observations. It is very hard to determine minima by visual estimation because the period is long and the light variation is slow.

Conclusion

Further observations, especially photoelectric, are desirable in

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order to study possible variation in the O-C residuals and the phase of secondary minima more accurately. Without such data, it will not be possible to detect apsidal motion in this star.

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References

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