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NEW TIMES OF MAXIMUM BRIGHTNESS FOR SX Phe (*)

SX Phe is the prototype of a well known class of variable stars belonging to the spherical component of the old galactic disk population with periods less than $0^d.10$ and amplitude of a few tenths of a magnitude. Coates et al. (1979) reviewed all the available timings of maximum light and established accurate values for the two periods simultaneously excited, i.e. $P_o = 0^d.054964438$ and $P_1 = 0^d.042772692$ identified as the fundamental mode and the first overtone respectively. The analysis led to the ephemeris

$$\text{Max} = \text{Hel. J.D. } 2438636.6170 + 0^d.054964438 \times E - 0.00325 \sin 2\pi(0.28503575 \times E - 0.107) \quad (1)$$

This ephemeris is reported in the Fourth Edition of the General Catalogue of Variable Stars (Kholopov et al., 1985) and curiously enough the only maxima observed photoelectrically after 1978 seem to be the 17 timings by Coates et al. (1980), made a few months after the publication of their ephemeris.

In order to fill the gap and upon request of some Guest Investigators at the IUE satellite interested by a correlation between spectral features and the phase of the light variation, photometry of SX Phe was included in an observing run carried out during November 1987 with the 50 cm telescope of the European Southern Observatory (La Silla, Chile) and devoted to much less studied δ Sct stars. Observations were carried out with a Strömgren b filter on the nights of November 9-10 and 13-14, logging a total of 4.0 hours. The comparison star chosen by Stock and Tapia (1971), i.e. HD 223011, was used. Two maxima with a difference in brightness of about 0.10 mag were observed. The Figure reproduces the light curve for November 13-14: a third maximum occurred just at the beginning of the observations, but cannot be determined reliably. The observed times of maxima are

Hel. J.D. 2 447	O-C
109.5509	$+ 0^d.0011$
113.5628	$- 0^d.0026$

O-C's refer to ephemeris (1) with E = 154153 and 154226 respectively. Taking observational errors and uncertainties of P_o and P_1 into account the small O-C's suggest no large change in the periods from 1960 to now. However,

(*) Based on observations collected at European Southern Observatory, La Silla, Chile

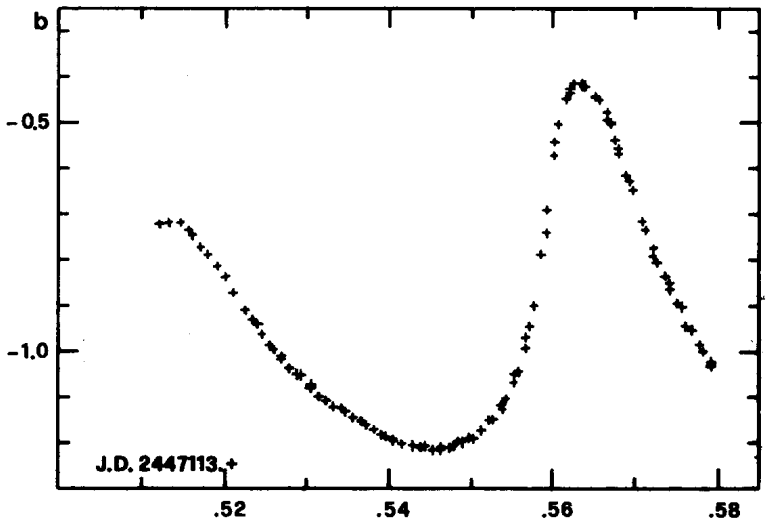

Figure 1

it is interesting to note that the linear term of the (1) fits better the observed times of maxima: O-C's are + $0^d.0009$ and + $0^d.0004$ respectively. Of course, further checks of ephemeris (1) are recommended. The project looks particularly attractive for southern amateur astronomers with small telescopes equipped with photoelectric photometers.

The observational data can be requested from the author.

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