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THE PERIOD OF THE *s*-CEPHEID VARIABLE V950 Sco*

The variability of HD 159654≡NSV 9246≡BV 547≡V950 Sco was first reported by Strohmeier et al. (1964) and the preliminary elements of its light variation were obtained by Diethelm & Tjemkes (1984). The latter authors classified the star as a Cepheid variable with a period of 3.3825 ± 0.015 d. On the basis of new and more accurate measurements, Mantegazza & Poretti (1992) determined the Fourier parameters of the *V* light curve and established that the star belongs to the class of the *s*-Cepheids, i.e. Cepheids which do not follow the Hertzsprung progression and pulsate in the first overtone mode. Owing to the large gap, it was not possible to relate the two available times of maximum light (HJD 2445540.43 and 2447991.097) and to refine the value of the period.

New measurements of V950 Sco were performed at the ESO-50 cm telescope in April and May 1992, following the same observing technique as described by Mantegazza & Poretti (1992); the same comparison star, i.e. HD 160069, was also used. The table lists the 13 new normal points collected in that way: they are not distributed in phase as well as the previous ones, but they allow us to reliably determine a new time of maximum at HJD 2448741.454, also confirmed by a much more precise time of minimum at HJD 2448743.247. No uncertainty is left as to the fact that the last two times of maxima are separated by 222 cycles: since we can estimate that the error on a single maximum determination is 0.03 d, we obtain a period of 3.3800 ± 0.0002 d. A similar value, i.e. 3.38013 ± 0.00005 d, was obtained by searching for the best light curve (including the first harmonic) fitting the data. In turn, this value for the period allows us to establish that 725 cycles separate the time of maximum reported by Diethelm & Tjemkes from our first one: the least-squares linear fit calculated by using the three available maxima gives

$$\text{Max.} = \text{HJD } 2447991.07 + 3.38019 \times E$$

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

| Hel. J.D. | V | Hel. J.D. | V |
|-------------|-------|-------------|-------|
| 2448733.842 | 7.402 | 2448743.919 | 7.308 |
| 8734.707 | 7.100 | 8745.653 | 7.251 |
| 8735.823 | 7.334 | 8745.792 | 7.292 |
| 8735.920 | 7.357 | 8745.921 | 7.324 |
| 8736.814 | 7.390 | 8746.785 | 7.417 |
| 8736.917 | 7.371 | 8746.920 | 7.399 |
| 8739.855 | 7.416 | | |

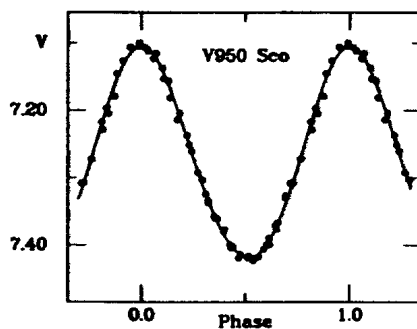


Figure 1

and an error of 0.00005 d on the period determination. Of course this linear ephemeris is valid only under the hypothesis that no abrupt change in the period has occurred since 1983.

As regards the Fourier parameters, the new measurements yield values that coincide (within the error bars) with those reported by Mantegazza & Poretti (1992). By processing all the 57 normal points we obtained the light curve shown in the figure; the resulting ϕ_{21} value, 3.70 ± 0.14 rad, confirms that V950 Sco lies below the classical Hertzsprung progression in the $\phi_{21} - P$ plane.

E. PORETTI¹, L. MANTEGAZZA²

1-Osservatorio Astronomico di Brera
Via E. Bianchi, 46
22055 Merate - Italy

2-Dipartimento di Fisica Nucleare e Teorica
Università di Pavia
27100 Pavia - Italy

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