COMMISSIONS 27 AND 42 OF THE IAU
INFORMATION BULLETIN ON VARIABLE STARS

Number 3710

Konkoly Observatory
Budapest
17 April 1992

HU ISSN 0374 - 0676

UBVR OBSERVATIONS AND NEW ELEMENTS FOR THE DOUBLE-MODE CEPHEID EW Sct

Photoelectric observations of the double-mode Cepheid EW Sct were carried out in summer-autumn 1991. The 60-cm reflector of the Mt. Maidanak observatory of the Tashkent Astronomical Institute was used and 81 UBVR measurements (Table 1) were obtained.

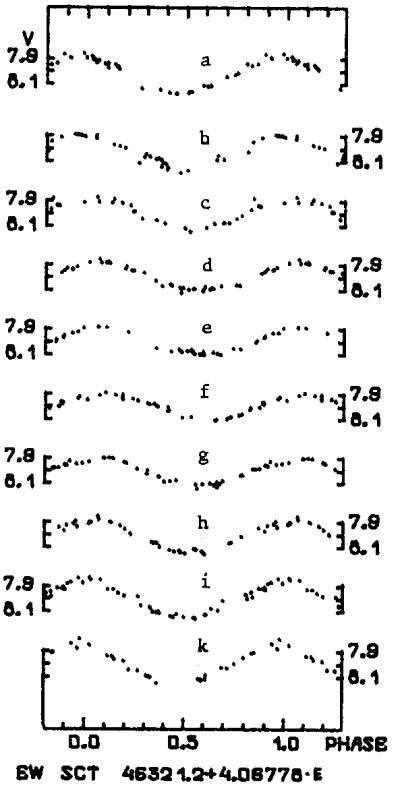

Figure 1

The light curves of double-mode Cepheid EW Sct with period P(1) in different phase intervals of period P(0):
0-0.1 (a), 0.1-0.2 (b), 0.2-0.3 (c), 0.3-0.4 (d), 0.4-0.5 (e),
0.5 - 0.6 (f), 0.6-0.7 (g), 0.7-0.8 (h), 0.8-0.9 (i) and 0.9-1.0 (k)

Table 1

JD hel 2448000+	V	U-B	B-V	V-R	JD hel 2448000+	V	U-B	B-V	V-R
418.4566	7.897	1.381	1.691	1.587	479.3143	8.194	-	1.896	1.681
419.3898	7.854	1.339	1.737	1.542	480.2405	8.235	1.516	1.822	1.678
420.3850	7.868	1.395	1.746	1.605	481.2696	7.946	1.342	1.687	1.590
425.4088	7.921	1.381	1.741	1.598	482.2729	7.865	-	1.686	1.578
426.3508	8.128	1.472	1.832	1.648	484.2437	8.007	1.409	1.758	1.614
427.3879	8.209	1.505	1.826	1.665	485.2175	7.984	1.428	1.756	1.615
428.3898	8.039	1.362	1.740	1.537	486.2174	8.079	1.493	1.788	1.648
429.4016	7.891	-	1.708	1.571	487.2075	8.152	1.487	1.803	1.656
430.3802	7.929	1.371	1.723	1.573	488.1834	7.837	1.338	1.648	1.551
436.3674	7.665	-	1.591	1.501	489.2084	7.735	1.350	1.630	1.537
437.3780	7.913	-	1.745	1.587	490.2253	7.935	1.436	1.728	1.610
438.3748	8.171	-	1.850	1.721	491.2338	8.194	1.576	1.884	1.669
439.3599	8.259	-	1.849	1.690	493.2133	7.851	1.349	1.670	1.553
440.3847	8.001	-	1.722	1.594	498.2444	8.043	1.451	1.774	1.620
443.3258	8.012	-	1.762	1.610	499.2183	8.053	1.438	1.768	1.620
444.3185	8.020	-	1.781	1.616	503.2047	8.191	-	1.853	1.689
445.3226	8.039	-	1.789	1.615	504.2192	8.247	-	1.838	1.669
448.3133	7.720	1.310	1.629	1.517	505.1814	7.800	-	1.642	1.542
449.3679	7.898	-	1.737	-	506.1804	7.752	-	1.652	-
451.3084	8.284	-	1.875	1.680	507.2121	8.023	-	1.775	1.637
453.3259	7.774	1.370	1.640	1.537	508.2044	8.163	1.514	1.843	1.667
454.3407	7.982	-	1.763	1.606	509.1937	8.124	-	1.804	-
455.3470	8.086	-	1.806	-	510.1872	7.967	-	1.727	1.596
456.3415	8.091	-	1.783	1.629	511.1925	7.959	-	1.729	1.600
457.3451	8.020	-	1.771	1.613	512.1997	7.892	1.379	1.696	1.580
458.3158	8.052	1.442	1.768	1.618	513.1875	7.881	-	1.694	-
459.2750	7.891	1.349	1.700	1.565	514.1820	7.947	1.415	1.750	1.603
460.3452	7.785	1.317	1.676	1.541	515.1931	8.162	1.493	1.829	1.677
461.2821	7.903	-	1.739	1.589	516.1923	8.204	-	1.829	1.665
462.2919	8.205	1.483	1.840	1.698	517.1863	7.746	-	1.635	1.517
463.2567	8.249	1.539	1.836	1.640	518.2007	7.765	-	1.631	1.550
464.2640	7.913	1.332	1.676	1.539	520.1851	8.224	-	1.850	1.681
465.3253	7.726	1.322	1.618	1.502	521.1427	8.179	-	1.814	1.660
466.3234	7.968	-	1.777	1.605	522.1434	7.885	-	1.687	1.571
467.3220	8.172	-	1.835	1.664	523.1808	7.888	-	1.695	1.575
472.3820	7.811	1.508	1.680	1.549	536.1421	8.037	1.422	1.777	1.641
473.3285	7.917	1.398	1.718	1.567	537.1260	8.106	1.438	1.789	1.642
474.3175	8.127	1.535	1.754	1.632	541.1507	7.810	1.325	1.648	1.547
475.3035	8.186	1.570	1.791	1.632	542.1124	7.811	1.339	1.670	1.560
477.2485	7.704	1.295	1.594	1.508	543.1275	8.014	1.448	1.761	1.632
478.2428	7.884	1.452	1.744	1.559					

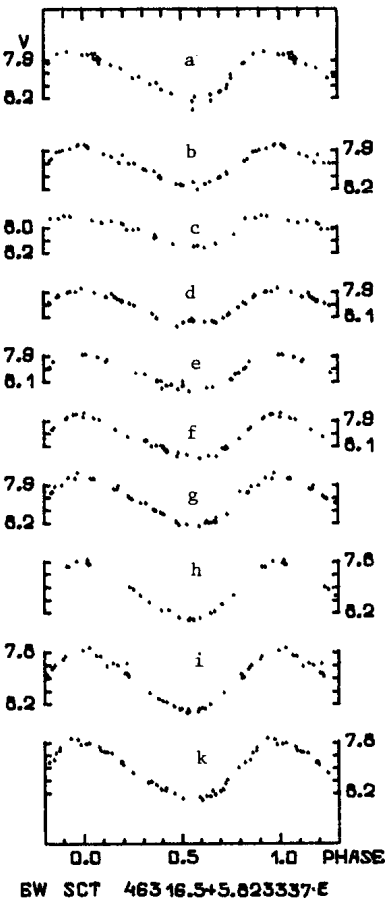

Figure 2

The light curves of double-mode Cepheid EW Sct with period P(0) in different phase intervals of period P(1):
0-0.1 (a), 0.1-0.2 (b), 0.2-0.3 (c), 0.3-0.4 (d), 0.4-0.5 (e), 0.5-0.6 (f), 0.6-0.7 (g), 0.7-0.8 (h), 0.8-0.9 (i) and 0.9-1.0 (k)

These observations together with the other published ones (Berdnikov, 1992, Figer et al., 1991) allow to improve the periods using the method described by Antonello et al. (1986). The new elements are:

Max (0) = JD hel 2446316.5 + $5^{d}.823337$ E, and

Max (1) = JD hel 2446321.2 + $4^{d}.06778$ E.

The observed magnitudes converted into intensities were then expressed as a sum of two oscillations, and light curves of each oscillation were

constructed for different phase intervals of the other oscillation. These curves in V band are presented in Figures 1 and 2.

A detailed investigation of the light curves of EW Sct in UBVR bands will be published elsewhere.

L. BERDNIKOV and S. SKORNYAKOVA
University of Saratov, Saratov, Russia

M. IBRAGIMOV, V. KONDRATIEV and S. YAKUBOV
Astronomical Institute, Tashkent, Republic of Uzbekistan

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