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# UBVR OBSERVATIONS AND NEW ELEMENTS FOR THE DOUBLE-MODE CEPHEID AS Cas

Photoelectric observations of the double-mode Cepheid AS Cas were carried out in summer-autumn 1991. The 60-cm reflector of the Mt. Maidanak ob-

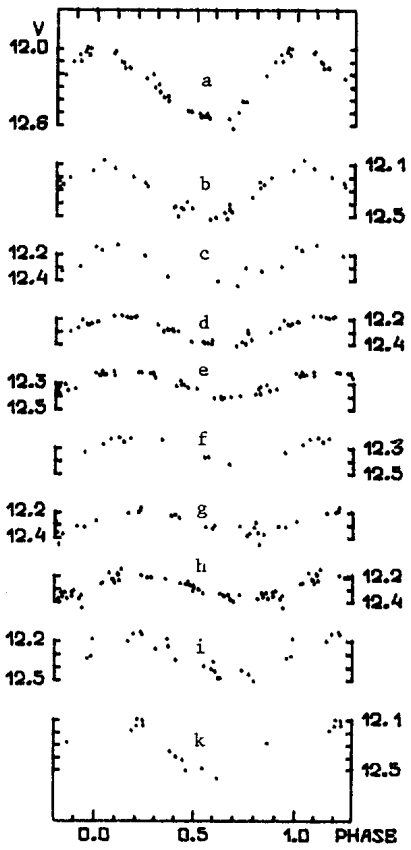


Figure 1

The light curves of double-mode Cepheid AS Cas with period P(1) in different phase intervals of period P (O):
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)

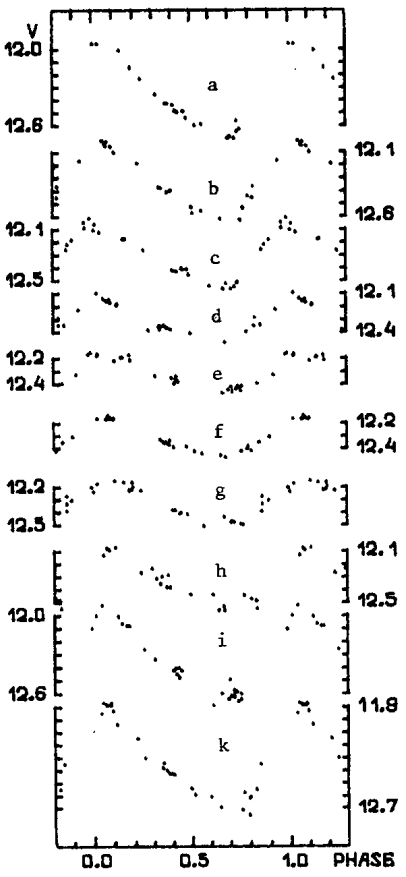


Figure 2

The light curves of double-mode Cepheid AS Cas 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)

servatory of the Tashkent Astronomical Institute was used and 54 UBVR measurements (Table 1) were obtained.

These observations supplemented with those published earlier (Berdnikov, 1992, Henden, 1980) allow to improve the periods using the method described by Antonello et al. (1986). The new elements are:

Max (0) = JD hel 2448510.14 + $3^{d}.024675$ E, and

Max (1) = JD hel 2448510.5 + $2^{d}.155557$ E.

Table 1

| JD hel 2448000+ | V | U-B | B-V | V-R | JD hel 2448000+ | V | U-B | B-V | V-R |
|---|---|---|---|---|---|---|---|---|---|
| 444.4515 | 12.292 | - | 1.390 | 1.232 | 509.4098 | 12.460 | 1.021 | 1.387 | 1.308 |
| 445.4518 | 12.653 | - | 1.507 | - | 510.3942 | 11.722 | - | 1.165 | 1.050 |
| 448.4434 | 12.324 | - | 1.415 | - | 511.4153 | 12.291 | - | 1.408 | 1.253 |
| 455.4485 | 12.303 | - | 1.315 | - | 512.4168 | 12.473 | - | 1.424 | - |
| 456.4484 | 12.160 | - | 1.291 | 1.159 | 513.4157 | 12.040 | - | 1.276 | - |
| 461.4445 | 12.006 | - | 1.238 | - | 514.4138 | 12.358 | - | 1.417 | - |
| 462.4542 | 12.290 | - | 1.344 | - | 515.4136 | 12.342 | - | 1.343 | 1.243 |
| 483.4484 | 12.312 | - | 1.393 | 1.247 | 516.3918 | 12.072 | - | 1.278 | 1.128 |
| 484.4536 | 12.339 | - | 1.387 | 1.241 | 517.3929 | 12.177 | - | 1.347 | 1.188 |
| 485.4575 | 11.973 | 1.283 | - | - | 520.3843 | 12.371 | - | 1.451 | 1.233 |
| 486.4647 | 12.492 | - | 1.486 | 1.330 | 521.3643 | 12.414 | - | 1.374 | 1.250 |
| 477.4503 | 12.222 | - | 1.340 | 1.209 | 522.2997 | 12.148 | - | 1.279 | 1.195 |
| 479.4672 | 12.297 | - | 1.442 | 1.242 | 523.3380 | 12.228 | - | 1.337 | 1.225 |
| 482.4514 | 12.147 | - | 1.295 | 1.183 | 533.3595 | 12.491 | - | 1.483 | 1.304 |
| 485.4181 | 12.186 | - | 1.312 | 1.202 | 537.3231 | 12.112 | 0.887 | 1.279 | 1.165 |
| 487.4259 | 12.309 | 0.800 | 1.401 | 1.250 | 541.3980 | 12.268 | - | 1.376 | 1.242 |
| 490.4165 | 12.471 | 0.968 | 1.448 | 1.310 | 542.2482 | 12.467 | 1.133 | 1.464 | 1.260 |
| 491.3749 | 12.190 | 0.923 | 1.303 | 1.221 | 543.2920 | 11.864 | 0.977 | 1.173 | 1.094 |
| 494.3835 | 12.392 | - | 1.422 | 1.254 | 551.2763 | 12.454 | - | 1.478 | 1.267 |
| 498.3969 | 12.111 | - | 1.287 | 1.202 | 552.2750 | 12.139 | - | 1.265 | 1.196 |
| 499.3389 | 12.349 | 0.935 | 1.416 | 1.270 | 553.2429 | 12.200 | - | 1.300 | 1.200 |
| 503.3517 | 12.551 | - | 1.454 | 1.297 | 556.2820 | 12.090 | - | 1.325 | 1.163 |
| 504.3758 | 11.867 | - | 1.217 | 1.128 | 557.2307 | 12.573 | - | 1.443 | 1.342 |
| 505.4105 | 12.489 | - | 1.443 | 1.296 | 559.2501 | 12.256 | - | 1.383 | 1.211 |
| 506.4245 | 12.267 | - | 1.324 | - | 560.2376 | 12.324 | - | 1.387 | 1.202 |
| 507.4144 | 12.189 | - | 1.327 | - | 561.2585 | 12.327 | 0.940 | 1.346 | 1.235 |
| 508.3909 | 12.254 | - | 1.288 | 1.236 | 562.2889 | 12.029 | 0.897 | 1.256 | 1.174 |

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 AS Cas in UBVR bands will be published elsewhere.

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