

Omega UMa magnetic field measurements

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Abstract. Magnetic measurements of ω UMa have shown the absence of magnetic field in this Ap star at the level of 100 G.

ω UMa (HD 94334, BS 4248, DM+43 2058) is one of the brightest Ap stars of the northern hemisphere $m^v = 6.^m672$. It is a silicon star of the spectral type A1V. ω UMa is a spectral binary system with a period of 15.831828 days (Hric, 1985). The magnetic field has not been yet studied. Since magnetic field occurs frequently in Si-type Ap-stars we have conducted the long-term investigation of the magnetic field of this star. The observations were taken using the hydrogen-line magnetometer of the 6 m telescope at the Special Astrophysical Observatory, Nizhnij Arkhyz. The detailed description of the instrumentation has been done by Shtol' (1991; 1993). The measurements were performed in the wings of the Balmer series of the hydrogen lines H_β and H_γ . The slits of 9.0 Å in width were located symmetrically relative the line cores and centred on the lines during the measurement with reciprocal separation by 9.0 Å. The results of measurements are collected in the table.

Table 1:

JD	B_e	σB_e
2449028.5087	-110	140
2449029.4094	-84	196
2449051.2837	-223	163
2449317.5910	-20	115
2449381.3607	-215	198
2449496.4657	-79	149
2449501.2628	+179	98
2449713.6545	+66	251
2450149.4824	+11	90
2450208.4324	-80	113
2450209.4049	+12	83
2450211.3486	+46	102
2450211.4410	+115	97
2450212.3125	+240	99
2450212.4319	-78	82

The root-mean-square magnetic field estimate $\langle B^e \rangle$ derived from 15 estimates by the procedure proposed by Borra et al. (1983) is $\langle B^e \rangle = 128 \pm 141$ G.

The average field from all the estimates: $B^e = +16 \pm 29$ G

Conclusions: It is seen that the magnetic field of this Ap star does not exceed 100 Gs at the level of 3 rms errors.

References

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