The Magnetic Field of an Ap-Star GY And

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Abstract. We conduct regular magnetic monitoring of long-period (period of about 21.5 years) Magnetic star GY And (HD9996) on the 1st telescope of the SAO RAS. Monitored to clarify the "long" period and investigate additional magnetic field variability near the extremes of the magnetic field.

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1 Magnetic Field Variability GY And

HD9996 (GY And, HR 465) — SB system in which the main component Ap-star of spectral class B9 CrEuSi type of pecularity. The magnetic field of the main component of the Ap star is measured for the first time Babcock (1958), and then a number of authors Preston & Wolff (1970); Scholz (1978, 1983); Bychkov et al. (1997); Romanyuk et al. (2014); Metlova et al. (2014). The total duration of magnetic measurements after Babcock (1958) is just over 71 years, this is more than three periods. But the problem is that these measurements were made on different telescopes, with various equipment and processing methods. Only one long uniform series he received measurements on the 1-m telescope of the SAO RAS. The duration of this series is 9205 days (over 25 years), more than one period. As can be seen from the figures, the greatest variation of values relative to the average phase curve observed in the region of maximum and minimum magnetic field values. The average magnetic phase curve is best described by a double sinusoid

As can be seen from the figures, the greatest variation of values relative to the average phase curve observed in the region of maximum and minimum magnetic field values. The frequency analysis of the existing series of measurements made it possible to clarify the "long" period and it turned out to be close to the valuation of Pyper & Adelman (2017) — 7850 ± 100 days. The average magnetic phase curve is best described by a double sinusoid, were $B_0 = -171 \pm 11\ G, B_1 = 946 \pm 12\ G, B_2 = 197 \pm 12\ G$

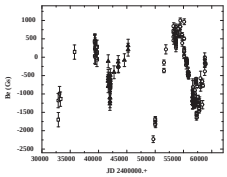

Fig. 1. All magnetic field estimates vs. Julian date (JD2400000.+).

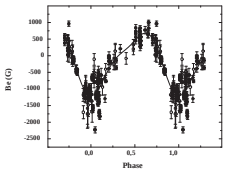

Fig. 2. The average magnetic phase curve is obtained from all measurements.

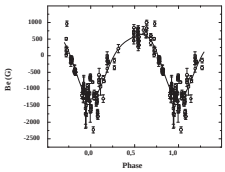

Fig. 3. The average magnetic phase curve obtained on the 1-m telescope.

2 Concluding Remarks

Frequency analysis of mean phase curve evasions revealed no significant periods. In this regard, to understand the nature of these evasions magnetic monitoring of this most interesting object will continue. The authors believe that significant progress with an understanding of the nature of such behavior would help very high-quality spectropolymetric observations. The authors hope to receive such observations after the introduction of a high-resolution spectropolarimeter at the 6th telescope of the SAO RAS Kukushkin et al. (2016).

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