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IZ AURIGAE

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The variable star IZ Aurigae = S 8006 = GSC 3373.518 ($\alpha_{J2000} : 05^{\text{h}}53^{\text{m}}36^{\text{s}}; \delta_{J2000} : +52^{\circ}25'57''$) was discovered by Hoffmeister (1963). He gave remarks on the type (EA) and range of variability ($13 - 14m_{pg}$) as well as on the fact that he had observed only one certain minimum. A bibliographical search in the SIMBAD data base did not yield any other information on this star.

We have observed IZ Aur with an SBIG ST-6 CCD camera attached to the 0.35 m S-C-telescope of the R. Szafraniec Observatory at Metzerlen, Switzerland. GSC 3373.732 (GSC magnitude: 11.17) served as comparison star C, while GSC 3373.454 was used as check star K. Both these stars turned out to be constant at the $0^{\text{m}}01$ level ($C - K = -1.00 \pm 0.01$ in the instrumental system). A total of 99 CCD measurements (without using a filter) during 15 nights from JD 2450844 to JD 2450902 have been obtained. In addition, 55 CCD (without filter) observations were gathered by E. Blättler (private communication) with a SBIG ST-7 at his 0.15 m refractor in a private observatory located at Wald, Switzerland, yielding photometry at the $0^{\text{m}}03$ level. His observations were obtained during two nights (JD 2450864, JD 2450871) and cover the phase interval $0^{\text{p}}3$ to $0^{\text{p}}6$. Due to the proximity of the comparison stars to the variable, no correction for differential extinction was applied to the data.

We have subjected the 154 observations to a period search routine. Together with a well observed time of primary minimum, the following elements are found:

$$\text{JD}(min, hel) = 2450846.2735(7) + 0.771301(5) \times E \quad (1)$$

In Figure 1, we show all our CCD data folded with the elements (1).

IZ Aurigae is an Algol type eclipsing binary with a deep primary minimum (amplitude in the instrumental system: $1^{\text{m}}56$; duration of eclipse: $D = 0^{\text{p}}23 \pm 0^{\text{p}}01 = 0^{\text{d}}17 \pm 0^{\text{d}}01$; no observable phase of totality) and a well defined secondary minimum of $0^{\text{m}}39$ depth and of equal duration as the primary. This secondary occurs at phase $0^{\text{p}}5$. We therefore conclude that IZ Aurigae is a detached binary with a circular orbit.

From the depth of the two minima we can infer that the inclination of the orbit is very close to 90° and that IZ Aur consists of two stars of about equal radius but considerably different luminosity and hence colour. This system seems to be rather interesting concerning the possibility of determining accurate physical properties.

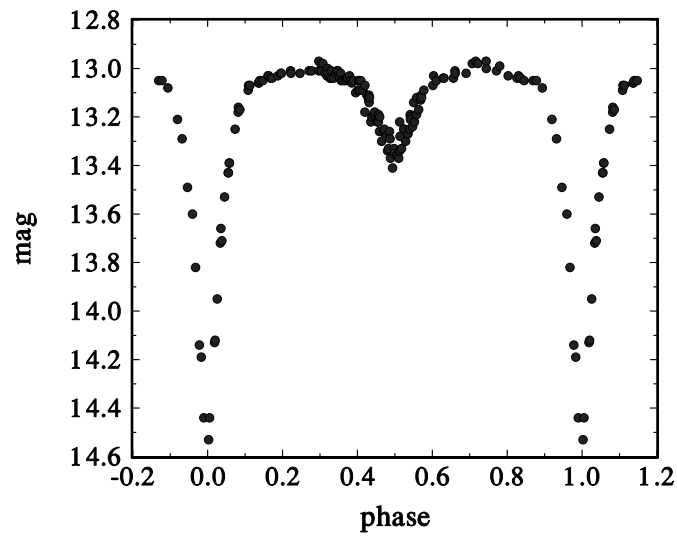


Figure 1. CCD light curve of IZ Aurigae using the elements (1)

This research made use of the SIMBAD data base operated by the CDS, Strasbourg, France.

Reference:

Hoffmeister, C., 1963, *Astr. Nachr.*, **287**, 14