

## GSC 4232-02059 - a New Beta Lyrae System

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<b>Star Name:</b>	GSC 04232-02059, NSVS 3145727, NSVS 3145773, NSVS 3173757		
<b>Coordinates (J2000):</b>	20 02 04.05, +61 33 11.8		
<b>Variability type:</b>	EB;	<b>Limits, System:</b>	13.1-13.6 (R, NSVS);
<b>Period:</b>	0.584566 d;	<b>Epoch(min):</b>	JD 2454474.3121

### Remarks:

Variability of GSC 4232-02059 was detected on a series of 354 30-second exposures taken on August 8, 2007 with a Vixen (D=102mm, F=795mm) refractor equipped with an SBIG ST2000XM unfiltered CCD camera. The observations were carried out at the Ka-Dar public observatory, Moscow Region.

To combine our unfiltered photometry with publicly available NSVS (Wozniak et al., 2004; <http://skydot.lanl.gov/nsvs/nsvs.php>) data, we shifted the zero point of our light curve to match its magnitude at maximum light to the magnitude at maximum of the NSVS light curve. The combined light curve allows us to classify GSC 4232-02059 as an EB-type eclipsing binary system.

To reliably determine the period of variability, we have conducted additional observations on January 5 - 11, 2008 at the mountain station of the Kazan State University (Karachay-Cherkessia, Russia). We have used a Celestron 80ED (D=80mm, F=600mm) refractor with the same ST2000XM camera. We have obtained 5297 30-s exposures. As in the case of the first observing session at the Ka-Dar observatory, the 30-s exposure time was chosen because of bad tracking. Despite GSC 4232-02059 was observed near its lower culmination, perfect sky conditions allowed us to achieve sufficient photometric quality.

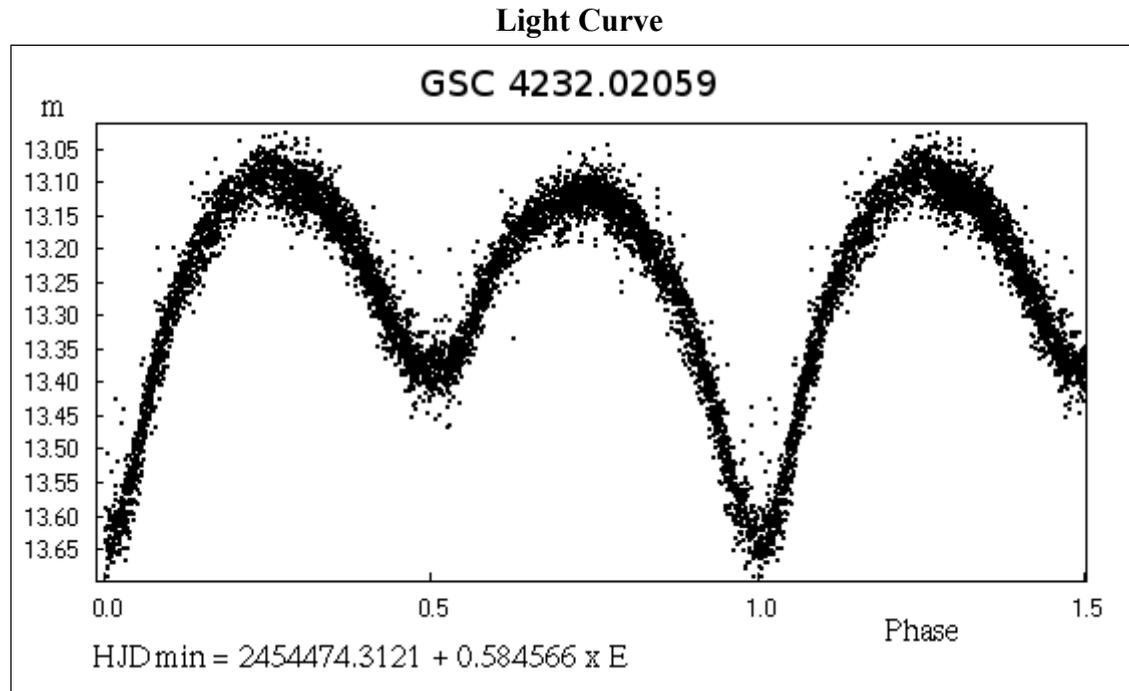
The light elements were determined for the primary minimum:  $HJD_{min} = 2454474.3121 + 0.584566 \times E$ .

The primary minimum is about 0.27 mag deeper than the secondary one. The maximum which follows the secondary minimum is by 0.05 mag fainter than that which follows the primary minimum (positive O'Connell effect).

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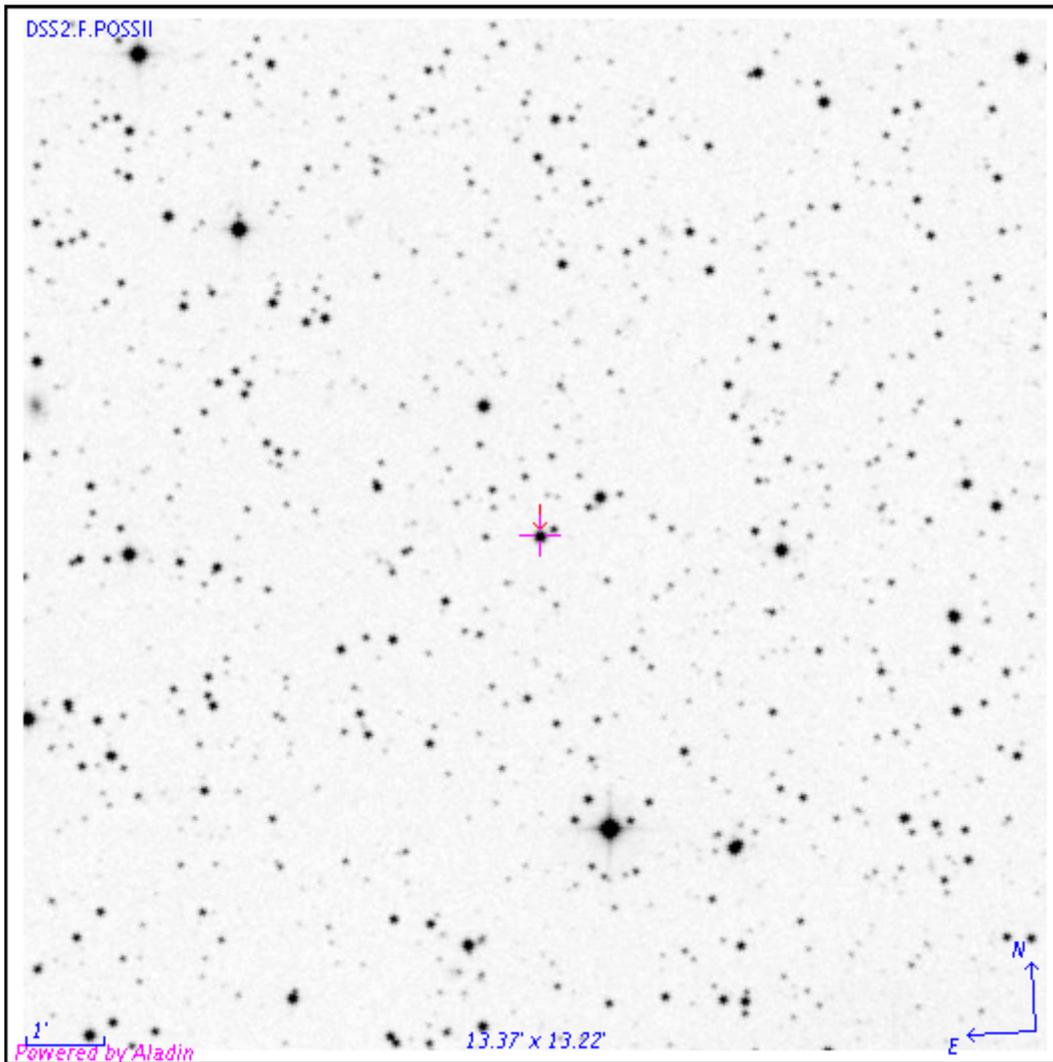
**References:**

Wozniak, P.R., Vestrand, W.T., Akerlof, C.W., et al., 2004, AJ, 127, 2436



The light curve of GSC 4232-02059 in the magnitude scale of NSVS 3145773.

**Finding Chart**



**Data Source**

1. [ecl\\_hjd.dat](#)