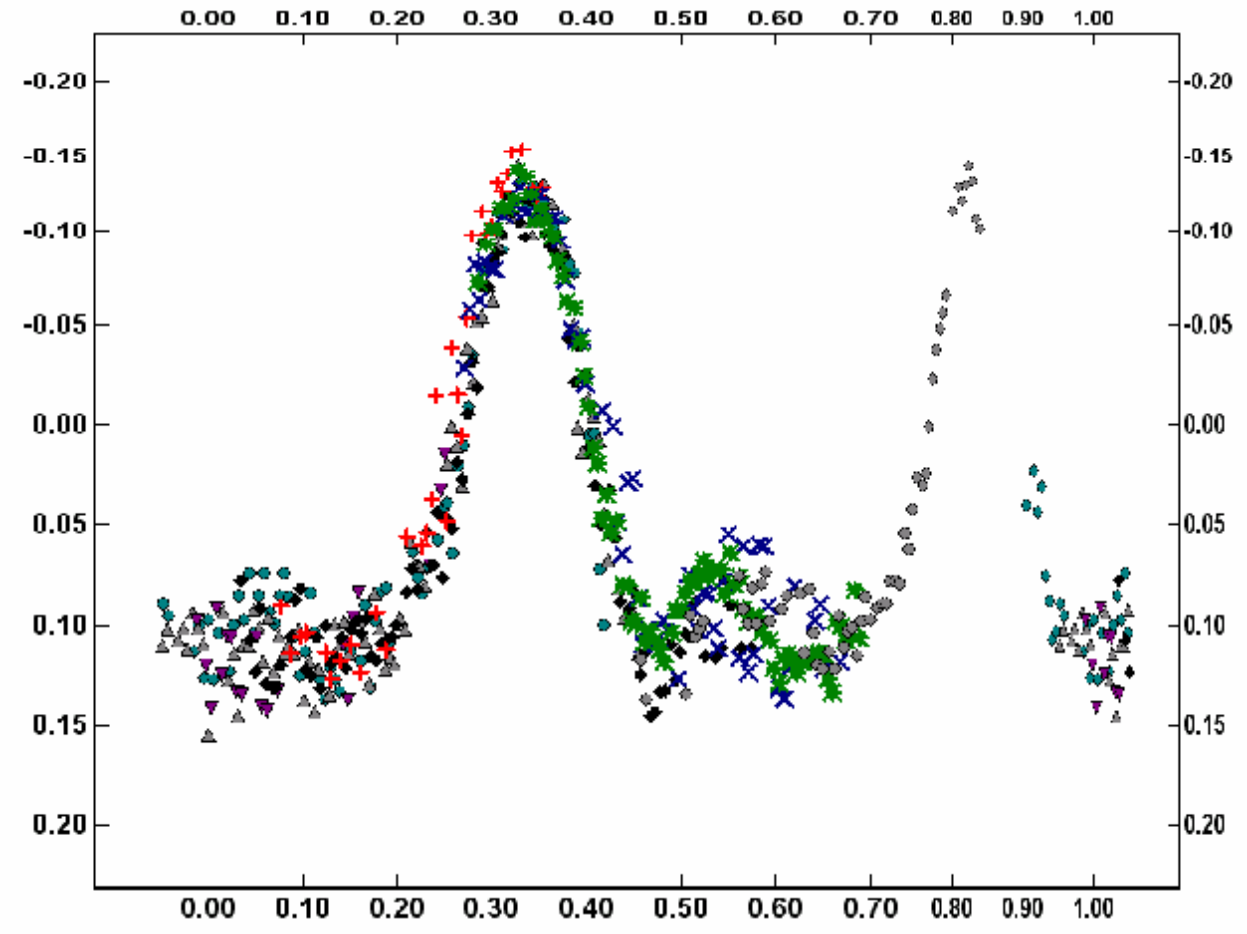
(1635) Bohrmann



Period: 11.73 ± .005
Amplitude: .28 ± .03

Dates Observed: September 17 to October 10, 2003
Number of Sessions: Stephens – 6, Warner - 2
Number of Observations: Stephens – 382, Warner - 138

Instruments: Stephens, .35 meter F/6 SCT with a SBIG ST9e CCD Camera; Warner, 0.5m f/8.1 Ritchey-Chretien Scope with Fingerlakes IMG with KAF 1001E.

Notes: Bohrmann is a member of the Koronis family discovered on March 7, 1924 by K. Reinmuth at Heidelberg. It is named in honor of Alfred Bohrmann who was at the Königstuhl Observatory from 1924 to 1969. He was a well known observer of minor planets, publishing 700 observations. Based upon its H value, Bohrmann is estimated to be between 17 and 37 km in diameter.

Bohrmann was suggested by Stephen M. Slivan's Koronis asteroid web site based upon inputted observing parameters. For many years, Stephen Slivan has conducted a study of Koronis asteroids to determine rotational periods and spin vectors. In a letter to Nature (Vol. 419, September 2002) he reported that the Koronis family seems to be divided into two 'spin cluster' groups, each with similar rotational periods and spin vectors. One group averaged about 3 rotations per day (8 hours) while the other averaged about 2 rotations per day (12 hours). 1635 Bohrmann rotates 11.73 hours per day and so it apparently belongs to this second group.

I started this project from my observatory in Rancho Cucamonga, California. However, the telescope used for the observations was temporarily mounted in the observatory in such a manner that its view to the south is somewhat restricted. After the first night of data I quickly realized that the asteroid was rapidly headed south and after a few nights would be below the south wall of the observatory. To make matters worse, with either an 8 or 12 hour rotational period, the asteroid largely showed the same face to Earth each night. It was very difficult to remove aliases in the period. After five nights, I could not eliminate 7.9 or 15.8 hours as possible periods.

When I could no longer observe the asteroid, I enlisted the help of Brian Warner who wrote the analysis software and with whom I and collaborated with several times in the past.

The observations from both observatories were taken unfiltered. However, using the method described in Slivan's Nature letter, observations using a Johnsons-Cousins V filter were obtained on September 19, 2003 of a nearby standard star (L092-288, 00h 57m 17s +00d 36m 46s e 2000.0) listed on Slivan's web site. V filter observations of the asteroid and comparison stars were then obtained and a zero point adjustment was applied to the instrumental magnitudes. The resulting minimum V brightness for the asteroid was 14.6 ± .01. The calculated V maximum of the lightcurve is 14.32.

Bohrmann had not had any previous lightcurves reported, so many more future observations will be need to determine its spin axis and see if it really belongs to one of the two groups of Koronis asteroids. The next several oppositions of 1635 Bohrmann are in January 2005, February 2006, May 2007, and September 2008.

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