1991LPICo.765...33B

CCD Photometry of 2060 Chiron, 1991 January

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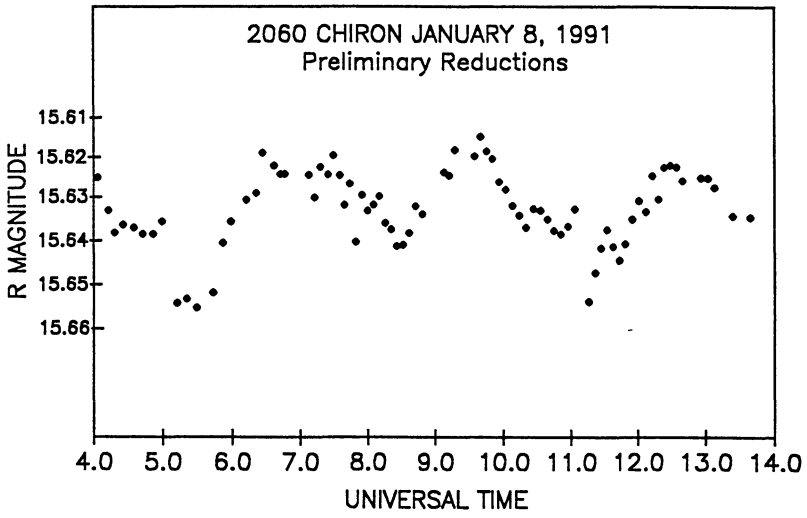
2060 Chiron was observed on UT 1991 January 07–08 with the Mt. Palomar 1.52-m telescope in the Gunn-*R* passband. On-chip field stars were used to perform differential reductions. The repeatability of the 5.9-hour light curve was excellent, both within a night and from night to night. No evidence for short-term (~day) secular variations similar to those seen last year by both Luu and Jewitt (1990) and Buratti and Dunbar (1991) is seen in the new light curve.

Chiron's rotational light curve appears strikingly similar to that obtained a year earlier by Luu and Jewitt (1990), both in amplitude (0.04 mag) and shape. Both light curves show strongly correlated changes over a timescale of perhaps 15 minutes (*e.g.* UT 10.4 and 11.2, below). These same features were marginally visible in the 1986 light curve (Bus *et al.* 1987). We believe such behavior is evidence that Chiron may be more aspherical than the 4% intensity variation might otherwise indicate, and favors a viewing geometry where the subearth latitude is rather low. Chiron was much fainter in 1985, when a partial light curve was obtained by Marcialis. Due to the lower sampling rate of these early data, no conclusions can be made regarding the high-frequency lightcurve structure back then. All three of these light curves differ significantly from that obtained by Buratti and Dunbar (1991), one week before the observations of Luu and Jewitt. The difference may be attributed to the fact that the Buratti and Dunbar data were obtained at the end of a short-term outburst, when the nucleus was most obscured by coma.

The Chiron field was calibrated using Landolt standards on UT 1991 March 15. We find a mean *R*-magnitude of 15.6 ± 0.1 (preliminary result). This is somewhat brighter than expected, based upon a "smooth" fit to the object's recent "nonasteroidal" variations.

Variability of 2060 Chiron has been demonstrated over timescales of minutes, hours, years, and as shown by the accompanying paper of Bus *et al.*, even several decades. We encourage an intense campaign to monitor the photometric behavior of Chiron throughout the 1990's, and can state that the only "secular" trends seen so far is that Chiron becomes both more interesting and more perplexing with time. (Work performed under contract to NASA).



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