

**LIGHTCURVE AND ROTATION PERIOD
DETERMINATION FOR (13124) 1994 PS,
(26571) 2000 EN84, AND (29934) 1999 JL46**

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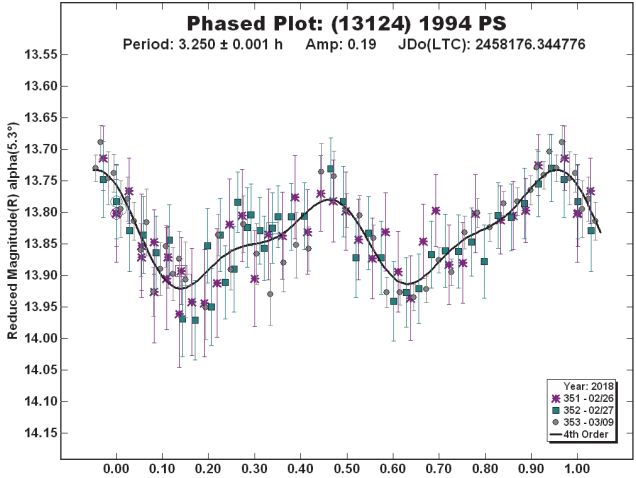
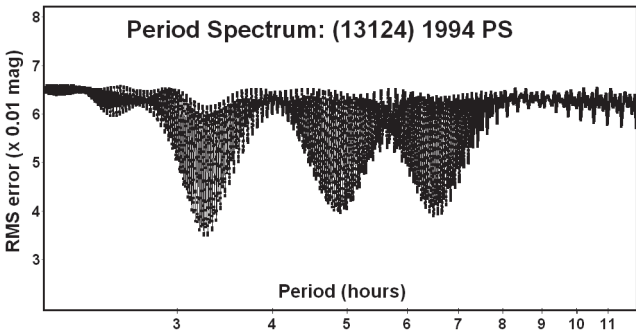
Photometric observations of the main-belt asteroids (13124) 1994 PS, (26571) 2000 EN84, and (29934) 1999 JL46 were made from 2018 Jan 23 to Mar 9. Analysis determined the synodic rotational periods for (13124) 1994 PS, 8.147 ± 0.003 h; (26571) 2000 EN84, 4.105 ± 0.003 h; and (29934) 1999 JL46, 5.841 ± 0.001 h as the most likely solutions.

Lightcurve analysis of three main-belt asteroids was performed using images taken at the Astronomical Observatory of the University of Siena (Italy). Data were obtained with 0.30-m $f/5.6$ Maksutov-Cassegrain telescope, SBIG STL-6303E NABG CCD camera, and clear filter; the pixel scale was 2.26 arcsec in binning 2x2. Exposures were 300 seconds.

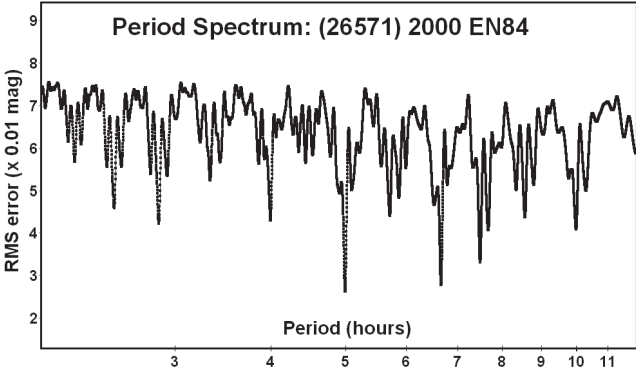
MPO Canopus (Warner, 2017) was used to measure the images, do Fourier analysis, and produce the lightcurves. Table I lists the asteroids that were observed as well as the period associated with the analysis and the number of data points in the analysis. Orbital data and discovery circumstances were taken from the JPL Small Bodies Node (JPL, 2018).

A search through the asteroid lightcurve database (LCDB; Warner et al., 2009) indicates that our results may be the first reported lightcurve observations and results for these objects. The three asteroids were reported as lightcurve photometry opportunities for 2018 January-March in the *Minor Planet Bulletin* (Warner et al., 2018).

(13124) 1994 PS is a main-belt asteroid discovered on 1994 August 14 by Kobayashi at Oizumi. It's a typical main-belt asteroid in an orbit with a semi-major axis of about 2.35 AU, eccentricity 0.108, and orbital period of about 3.60 years. We observed this asteroid from 2018 Feb 26 to Mar 9. The observations resulted in two sessions with a total of 123 data points. The result for the synodic period for (13124) 1994 PS is associated with the established bimodal lightcurve phased to 3.291 ± 0.001 h with an amplitude of 0.19 ± 0.03 mag.



(26571) 2000 EN84 (1990 BW1) is a main-belt asteroid discovered on 2000 March 7 by LINEAR at Socorro. It's a typical main-belt asteroid in an orbit with a semi-major axis of about 2.79 AU, eccentricity 0.097, and orbital period of about 4.65 years. We observed this asteroid from 2018 Feb 14-19. The collaborative observations resulted in 3 sessions with a total of 125 data points. The result for the synodic period for (26571) 2000 EN84 is associated with the established bimodal lightcurve phased to 4.999 ± 0.002 h with an amplitude of 0.25 ± 0.02 mag.



Number	Name	2018/mm/dd	Pts	Phase	L _{PAB}	B _{PAB}	Period(h)	P.E.	Amp	A.E.
13124	1994 PS	02/26-03/09	123	5.3, 2.7	166	3	3.291	0.001	0.19	0.03
26571	2000 EN84	02/14-02/19	125	3.1, 4.7	144	6	4.999	0.002	0.25	0.02
29934	1999 JL46	01/23-02/03	170	7.2, 7.5	128	-11	11.402	0.001	0.30	0.03

Table I. Observing circumstances and results. Pts is the number of data points. The phase angle is given for the first and last date. LPAB and BPAB are the approximate phase angle bisector longitude and latitude at mid-date range (see Harris et al., 1984).

References

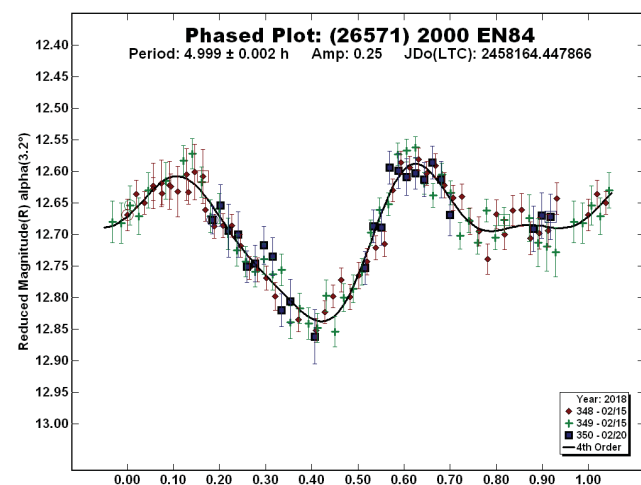
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<http://www.minorplanet.info/lightcurvedatabase.html>

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(29934) 1999 JL46 (1934 EF) is a main-belt asteroid discovered on 1999 May 10 by LINEAR at Socorro. It's a typical main-belt asteroid in an orbit with a semi-major axis of about 2.91 AU, eccentricity 0.292, and orbital period of about 4.61 years. We observed this asteroid from 2018 Jan 23 to Feb 2. The collaborative observations resulted in 3 sessions with a total of 170 data points. The result for the synodic period for (29934) 1999 JL46 is associated with the established bimodal lightcurve phased to 11.402 ± 0.001 h with an amplitude of 0.30 ± 0.03 mag.

