

COMMISSIONS 27 AND 42 OF THE IAU  
INFORMATION BULLETIN ON VARIABLE STARS

Number 9999

Konkoly Observatory  
Budapest  
1 September 2002  
*HU ISSN 0374 – 0676*

**NSV 10892 IS A W UMa ECLIPSING BINARY**

KOPPELMAN, M. D.<sup>1</sup>; WEST, D.<sup>2</sup>; PRICE, A.<sup>3</sup>

<sup>1</sup> Starhouse Observatory, 1523 Valders Ave N, Golden Valley, MN USA e-mail: lolife@bitstream.net

<sup>2</sup> West Skies Observatory, Mulvane, KS, USA e-mail: dwest61506@aol.com

<sup>3</sup> AAVSO HQ, Clinton B. Ford Astronomical Data and Research Center, Cambridge MA USA e-mail: aaronp@aavso.org

<b>Name of the object:</b>
NSV 10892 = HD 170451

<b>Equatorial coordinates:</b>	<b>Equinox:</b>
R.A.= 18 <sup>h</sup> 29 <sup>m</sup> 13 <sup>s</sup> .016 DEC.= 06°47'13".76	2000

<b>Observatory and telescope:</b>
M. Koppelman: Starhouse Observatory, MN USA, 102-mm refractor; T. Droege: Private Observatory TOM1, Batavia, IL, dual 100-mm refractors; D. West: West Skies Observatory, Mulvane, KS USA, 0.2m SCT

<b>Detector:</b>	M. Koppelman: SBIG ST-237A; T. Droege: Custom built dual CCD 442A; D. West: SBIG ST-9E
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<b>Filter(s):</b>	M. Koppelman: Johnson V; T. Droege: Johnson V and Cousins $I_c$ ; D. West: Johnson/Cousins $BVR_cI_c$
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<b>Date(s) of the observation(s):</b>
2002.06.09, 2002.06.16, 2002.06.28, 2002.06.29, 2002.07.21, 2002.07.23, 2001.07.17, 2002.08.02, 2002.08.06, 2002.08.08

<b>Comparison star(s):</b>	GSC 00445-01017, GSC 00445-01293, SAO 123778
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<b>Transformed to a standard system:</b>	M. Koppelman: no; T.Droege: no; D.West: Cousins
<b>Standard stars (field) used:</b>	SAO 123778

<b>Availability of the data:</b>
Through IBVS Web-site as file 9999-t1.txt

<b>Type of variability:</b>	EW
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**Remarks:**

Variability of HD 170451 was suspected in 1958 and it is currently designated NSV 10892 in the Combined General Catalogue of Variable Stars (Kholopov, 1998). Variability was clearly demonstrated by data acquired from the TASS survey (Droege, 2002; Henden, 2001) in June of 2002. The period and nature of the variability was not immediately apparent. The difference of the simultaneous  $V$  and  $I_c$  TASS observations is constant with a standard deviation of less than  $0^m01$  in the variation of the difference.

Koppelman made over 1400  $V$  observations to characterize the light curve. Koppelman's  $V$  magnitudes were derived from differential photometry against GSC 00445-01017 and GSC 00445-01293 using Tycho-2  $V$  magnitudes calculated from  $V = V_t - 0.090 * (B_t - V_t)$ . These observations put the amplitude of the star at  $0^m36$ , with a maximum of  $V = 9^m36$  and a minimum of  $V = 9^m72$ . Standard deviations of the comparison stars' magnitudes were less than  $0^m02$  for Koppelman's observations.

Using data from TASS and Koppelman, the period was determined by least-squares Fourier fitting. A preliminary ephemeris for the system is

$$\text{Min. I} = \text{HJD } 2452454.7107 + 0^d375296 \times E \quad (1) \\ \pm 0.0004 \pm 0.000003$$

Figure 1 shows binned  $V$  observations by Koppelman plotted with all the TASS  $V$  observations and shows the characteristic shape of a W UMa binary. The system is most likely associated with the bright X-ray source 1RXS J182912.6+064717, giving further evidence that it is a W UMa system with X-ray emission arising from coronal activity.

West performed  $BVR_cI_c$  photometry on the system using the Cousins standard SAO 123778 (Cousins, 1980) and determined  $B-V = 0^m65$ ,  $V-R_c = 0^m32$ , and  $V-I_c = 0^m69 \pm 0^m03$ .

Coordinates are from the Tycho catalog, adjusted for proper motion by VizieR.

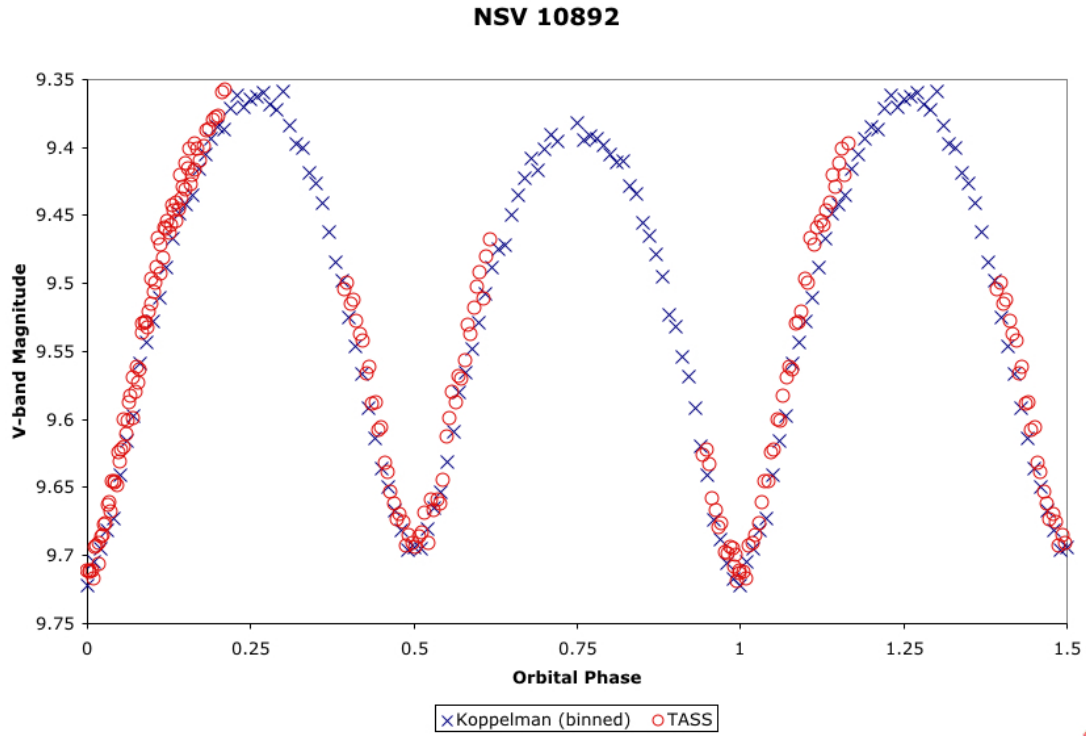
**Acknowledgements:**

Thanks to Tom Droege and everyone else involved with The Amateur Sky Survey and Chris Lloyd for help with the ephemeris. The CCD camera used by D. West was provided through the AAS Small Grants Program. This research made use of the SIMBAD database, operated by the CDS at Strasbourg, France.

## References:

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**Figure 1.** V magnitude vs. orbital phase.