

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

Number 5624

Konkoly Observatory
Budapest
8 April 2005

HU ISSN 0374 – 0676

**THE FIRST CCD BVRI LIGHT CURVES
OF THE NEAR-CONTACT BINARY V387 Cyg**

MANIMANIS, V. N.¹; NIARCHOS, P. G.¹

¹ Dept. of Astrophysics, Astronomy and Mechanics, Faculty of Physics, National & Kapodistrian University of Athens, Athens, Greece; e-mail: vmaniman@cc.uoa.gr

Name of the object:	
V387 Cyg, TYC 2714-556-1	
Equatorial coordinates:	Equinox:
R.A.= 21 ^h 15 ^m 37 ^s .4 DEC.= +37°29'52"	2000
Observatory and telescope:	
National Observatory of Athens Kryonerion Station, 1.22 m Cassegrain telescope	
Detector:	PMIS CCD camera, Peltier & water cooled, 528 × 528 pixels binned to 264 × 264, 2.5' × 2.5' FOV.
Filter(s):	BVRI
Date(s) of the observation(s):	
2004.05.12, 2004.05.13, 2004.06.28, 2004.06.29, 2004.06.30	
Comparison star(s):	GSC 02714-00043
Check star(s):	Uncatalogued fainter star 25" SSW of the comparison
Transformed to a standard system:	No
Availability of the data:	
Available upon request	
Type of variability:	EB

Remarks:

Three minima times were obtained, indicating period increase. The heights of the two maxima are equal in all bands, i.e. no O'Connell effect is present. However, a strong asymmetry of the light curve after *MinII* is apparent, which is pronounced in *B* and *V*, but minimal to nonexistent in the *R* and *I* curves. The surface temperature of the members of this binary is low, theoretically allowing the presence of cool spots. Moreover, the large difference in the depths of minima suggests large surface temperature difference and, thus, a semi-detached configuration for the system. This fact and the evidence for period changes suggest episodes of mass transfer between the members. Indeed, a hot spot radiating at smaller wavelengths would explain the shoulder of the curves after *MinII*, followed by the effect of a cool spot best visible at phase 0.65, which again decreases light emitted at smaller wavelengths. However, this cool spot should contribute to at least a small O'Connell effect for phase 0.75.

Acknowledgements:

This research was included in the *PYTHAGORAS* project for the support of research groups in the universities, co-funded by the EPEAEK program and the European Social Fund (ESF).

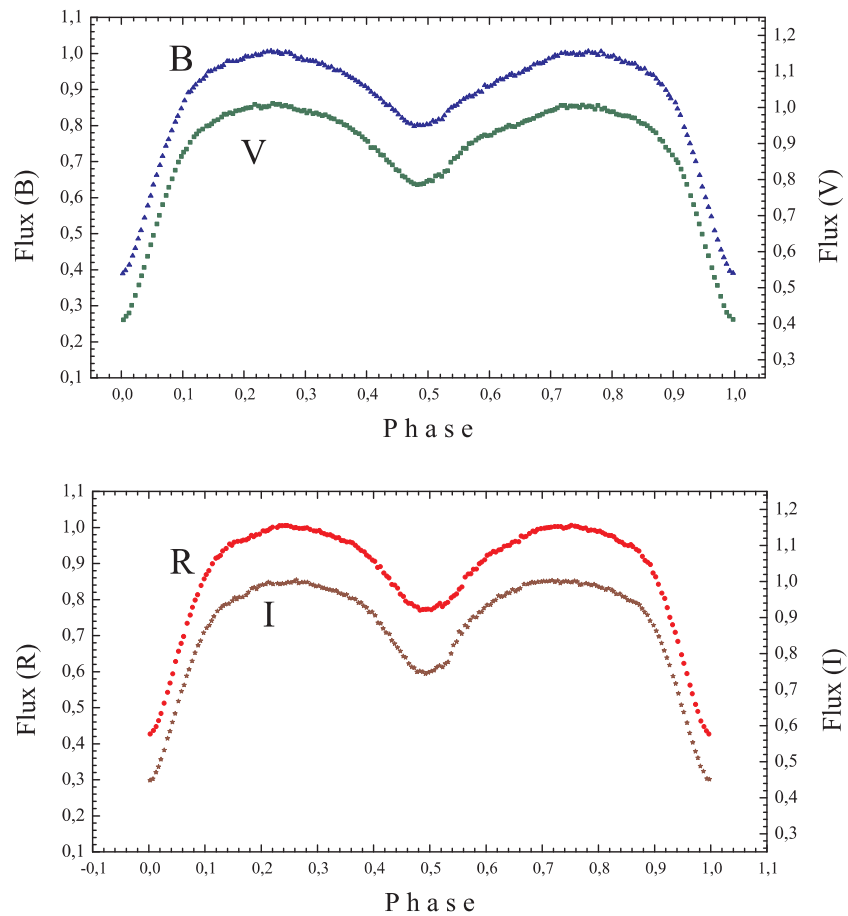


Figure 1. The complete *BVRI* light curves of V387 Cyg