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HIGH SPEED PHOTOMETRY OF HAMUY'S VARIABLE

During work on a photoelectric sequence for the Seyfert galaxy Arakelian 120, Mario Hamuy discovered a blue variable star with short term brightness variations similar to those of cataclysmic variables (Hamuy and Maza, 1986a,b). High speed photometry of Hamuy's star by Bond et al. (1987) confirmed the presence of rapid flickering, with a total range of  $\sim 0.15$  mag. A low quality spectrum of the star showed the presence of a broad H $\beta$  absorption line with a central, possibly double, emission peak. The presence of the absorption component suggests that Hamuy's star belongs to the UX UMa class of cataclysmic variables.

On 30 December 1986 we obtained a 3.6 hr photometric run on Hamuy's star, using the University of Texas High Speed Photometer (Nather 1973) on the 82-in Struve reflector at McDonald Observatory. 3 sec integrations in 'white light' (i.e. no photometric filter in front of the RCA 8850 photomultiplier) were obtained, starting at 06 hr 07 min 58 sec U.T. The light curve, with sky subtracted and extinction removed, is shown in Figure 1. The ordinate is the fractional intensity variation about the mean.

The star shows rapid flickering activity with a total range of 0.25 mag. Although the flickering is rather more rapid and of greater amplitude than is characteristic of UX UMa itself (Warner and Nather 1972) or of other UX UMa stars such as RW Sex (Hesser, Lasker and Osmer 1972) and V3885 Sgr (Cowley, Crampton and Hesser 1977), the brightest of the UX UMa stars, IX Vel, does show rapid flickering, albeit of lower amplitude (Williams and Hiltner 1984). The UX UMa stars have orbital periods 3-5 hours; our run is of sufficient length to exclude the possibility of any large brightness modulation in this period range.

However, there is also a resemblance between the light curve of Hamuy's star and that of EX Hya (Warner 1973 and unpublished), which indicates that an orbital period less than 2 hours should also be considered.

The eclipses in EX Hya are narrow and often of irregular profile (Warner 1972 and unpublished). Such features, if they exist in Hamuy's star, would be difficult to detect amidst the flickering activity. However, we note that

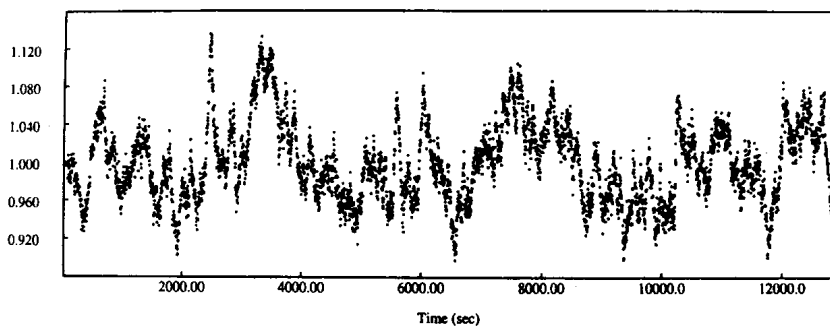


Figure 1 ; Light curve of Hamuy's star at 3 sec time resolution. The vertical scale is relative intensity.

the separation of the two low dips in the light curve of Bond et al. (1987) is 0.0592 days and the separation between the two narrow eclipse-like features that occur in our light curve near times 6500 secs and 11800 secs is 0.0601. The earlier feature, near time 2000 secs, is however separated by 0.054 day from the next dip. The near coincidence of some of these separations, and the similarity of the light curve with that of EX Hya, indicates that a more extensive campaign of spectroscopy and photometry of Hamuy's star is justified.

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References:

- Bond, H.E., Grauer, A.D., Burstein, D. and Marzke, R.O., 1987, *Publ. astr. Soc. Pacific*, 99, 1097.  
 Cowley, A.P., Crampton, D. and Hesser, J.E., 1977, *Astrophys. J.*, 214, 471.  
 Hamuy, M., and Maza, J., 1986a, *Int. Astr. Un. Circ. No.* 4172.  
 Hamuy, M., and Maza, J., 1986b, *Inf. Bull. Var. Stars*, No. 2867.  
 Hesser, J.E., Lasker, B.M. and Osmer, P.S., 1972, *Astrophys. J.*, 176, L31.  
 Nather, R.E., 1973, *Vistas in Astr.* 15, 91.  
 Warner, B., 1972, *Mon. Not. R. astr. Soc.*, 158, 425.  
 Warner, B., 1973, *Mon. Not. astr. Soc. S. Af.*, 32, 120.  
 Warner, B. and Nather, R.E., 1972, *Mon. Not. R. astr. Soc.* 159, 429.  
 Williams, G.A., and Hiltner, W.A. 1984, *Mon. Not. R. astr. Soc.*, 211, 629.