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ON THE INSIGNIFICANCE OF SOME CLAIMED OSCILLATION PERIODS

The recent IBVS entitled "Detection of new short period oscillations in PG1711+336 (V795 Her)" by Ashoka et al. (IBVS No.3352) demonstrates an elementary misunderstanding of the significance or otherwise of apparent periods in the light curves of cataclysmic variables (CVs). The short section of light curve of V795 Her obtained and illustrated by the authors shows the rapid brightness variations typical of CVs. Without implying any physical connection with solar or stellar flares, let us call the brightenings and fadings in the light curve "flares". The flares occur on a variety of timescales. If at least some fraction of the flares can be shown to occur repetitively, for many cycles, with a well defined period, then the claim of a periodicity can be made, and it is worthwhile enquiring the physical reason for such an eigenmode in the system. An extension to quasi-periodic oscillations can be made if there are sufficient oscillations that can be shown to occupy a relatively narrow range of period in the Fourier transform.

However, to claim, as Ashoka et al. do, that the occurrence of just three flares spaced nearly equally in time (during the time 20.23 to 21.33 of their Figure 1) constitutes the detection of a periodicity of 1389 secs, or even (because it was not present in the second half of their observing run) that it is quasi-periodic, is nonsense.

In a paper in press (A.W. Shafter, E.L. Robinson, D. Crampton, B. Warner and R.M. Preston - Ap.J. submitted) a total of 22 hrs of high speed photometry of V795 Her is presented: power spectra show no persistent short period oscillations. However, if the light curve were to be subdivided into sections as short as those used by Ashoka et al., any number of apparent "oscillation periods" would be found. This is true of most CVs. For example, the reader is invited to inspect the light curve of U Geminorum just prior to eclipse (p. 96 of I.A.U. Symposium No.73):

superficially there appears to be a periodicity in the flares, but power spectral analysis shows that there is none. If analysed in short sections, however, many apparent short-lived periodicities would emerge. There are hundreds of metres of plots of other CV light curves that could be similarly overinterpreted.

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