

Study of BL Her type pulsating variable stars using publicly available photometric databases

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Abstract. BL Her type pulsating variable stars are a subtype of Type II Cepheids, pulsating with periods in the range from 1 to 4 days. The General Catalog of Variable Stars lists 71 objects. For each star from this list, we searched for data in the publicly available photometric databases: AAVSO, ASAS, Catalina Sky Survey, *INTEGRAL* OMC, LINEAR, NSVS, SuperWASP. The analysis was done separately for each dataset. Here we present first results.

Keywords. stars: variable: Cepheids

1. Data and method

The list of BL Her variables was gathered from the General Catalogue of Variable Stars (GCVS). Time-series data for each star were collected by searching the publicly available databases: AAVSO, ASAS (Pojmański 1997, 2002, 2003; Pojmański & Maciejewski 2004, 2005; Pojmański *et al.* 2005), *INTEGRAL* OMC, Catalina Sky Survey, SuperWASP (Butters *et al.* 2010), etc. The data were analysed using Period04 (Lenz & Breger 2005).

2. First results

In the case of V553 Sco, V4410 Sgr, AT Tel, V714 Cyg, V742 Cyg and KO Lyr no data were found. In some cases there were not enough data points to perform the Fourier analysis. Here we present results on three stars we have studied. Our work has not been completed yet.

BD Cas – *INTEGRAL* data: instrumental errors in the light curve (Fig. 1).

NY Her – AAVSO data: SU UMA type dwarf nova (Kato *et al.* 2013), (Fig. 2).

UW For – ASAS data: an eclipsing binary (Fig. 3).

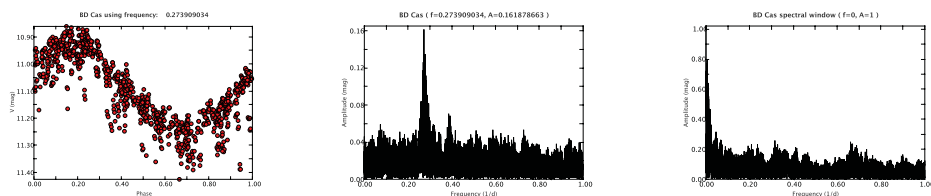


Figure 1. BD Cas from the *INTEGRAL* data. *Left:* phase diagram. *Middle:* Fourier spectrum, *Right:* spectral window.

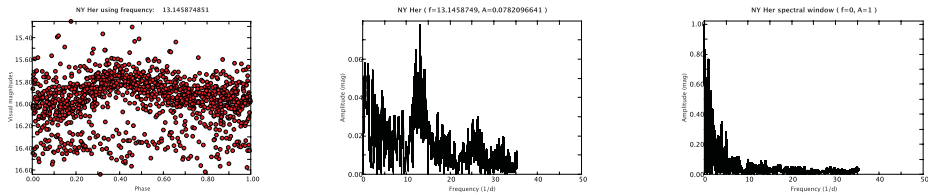


Figure 2. The same as in Fig. 1, but for the AAVSO data of NY Her.

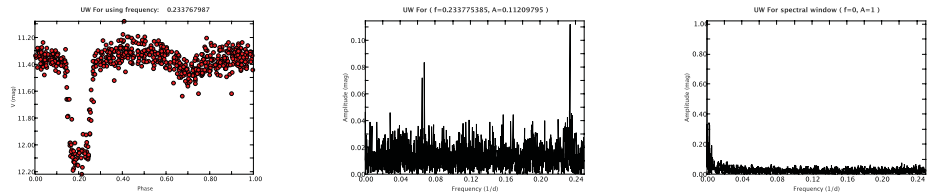


Figure 3. The same as in Fig. 1, but for the ASAS data of UW For.

3. Conclusion

As the presented three examples show, the GCVS classification for BL Her stars has to be taken into account with great care. With the completion of our study we hope to make a more reliable classification, and carry out further analysis of all objects.

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