DATABASE OF CANDIDATES FOR RR LYRAE STARS
IN BINARY SYSTEMS
RRLyrBinCan
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Abstract
A new online database with RR Lyrae stars bound in binary systems is presented. Its purpose is to give a quick overview about known and suspected RR Lyrae stars in binaries on the basis of available literature. The first released version of the catalogue contains information about 61 double-star candidates, their orbital periods, method of detection, comments and active links to published papers.

1 Introduction
Revelation of RR Lyrae stars bound in binary systems belongs among highly complicated observing tasks. Since the sixties of the 20th century several observing groups have tried to succeed in it. Many objects were marked as candidates for such systems. Unfortunately, only some of them were subsequently studied in detail to prove or disprove their observed behaviour. The rapidly growing number of candidates in last years (e.g. Li & Qian 2014; Hajdu et al. 2015) motivated us to prepare catalogue of the candidates for binary systems with RR Lyrae component which should help with identification of this astrophysically important class of binaries. The list together with the overview is included into the publication Liška et al. (2015).

2 Database structure
The list with known candidates of binaries, which is included in the main table, was created using available literature. The table contains official name of the object, its coordinates, magnitude range (preferably in available V-magnitudes), comments on the presence of the Blazhko effect, type of pulsator (RRab, RRc), orbital period, methods which were used for detection, or study of the binarity, reference with link to NASA ADS web page and, finally, comments (see Fig. 1). We give also the second table with stars which are blends, or other disapproved candidates for binarity.

3 Statistics of the candidates
Based on information in actual version of RRLyrBinCan database (25th September 2015) we give a basic statistics. The main table contains 85 records for 61 stars. From this sample 13 stars (21.3 %) belong among RR Lyrae Blazhko stars and 5 of them (8.2 %) are suspected of modulation. The majority of stars are of RRab type (59, 96.7 %), only 2 stars are of RRc type. Histogram with mean V-brightness of candidates (Fig. 2, the left panel) shows two populations which are the results of observational selection effects. One group consists bright stars from the galactic field (8 – 15 mag), the second of stars from the galactic bulge and near galaxies (LMC, Ursa Minor Dwarf Galaxy) in the range 16.5 – 20 mag.

4 Discussions and conclusions
We introduce a new database of candidates for RR Lyrae stars in binary systems. Short summary of actual state of the list is presented. Extension of the list with the objects from catalogues of pulsating binaries (Zhu 2010, ver. 2014; Stitnary 1990), for which are original references missing, and with the stars from globular clusters belongs among future plans.

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References
Stitnary, K., 1990, Journal of the American Association of Variable Star Observers (JAAVSO), 19, 52

http://rrlyrbincan.physics.muni.cz/