An Online Tool that Searches the WDS

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Abstract: An online tool that extracts entries based on user input from the Washington Double Star Catalog (WDS)[1] has been created. It can be found at:
http://mainsequence.org/html/wds/getListOfDoubles/mkWDS_List.html

The data in the Washington Double Star Catalog are currently scattered over several files. Researching it requires perusing these files to find all of the data related to a given star, a time-consuming activity. To ameliorate this, the author has built a series of computer programs that assemble most of these data for a given group of binaries into a single, online, color-coded list.

When the web site at http://mainsequence.org/html/wds/getListOfDoubles/mkWDS_List.html is accessed, an initial menu is displayed as shown in Figure 1.

The top four fields are for the right ascension and declination boundaries of the region you wish to search. These must be filled out, or the program will not run and it will return an error message to you.

The next four fields, labeled "Other parameters", specify the criteria for the search you're about to make. They are filled out with default parameters that you will probably want to change.

• Faintest primary star to list: The magnitude of the faintest primary star to be included in the list.

• Maximum magnitude difference between primary and secondary: Binaries with a greater brightness difference will not be in the list.

• Maximum separation between primary and secondary: Binaries with a greater separation will not be in the list.

• Minimum separation between primary and secondary: Binaries with less separation will not be in the

list.

Clicking the Submit button will create the list.

The columns in the list are described in the explanation section, which can be accessed by clicking the "Explanation" tab in the third line of the list's header. It is reproduced in the following paragraphs:

The data in this list is a compendium of the United States Naval Observatory's main catalog, neglected stars, notes, and alternate star name list. The data in your list are taken from these documents and filtered according to your submitted specifications.

Row color explanation:

• A pair shown in green means that the data for the pair are probably accurate.
• A pair shown in yellow means that the WDS has listed the pair as neglected.
• A pair shown in red means that the pair has not been observed since 1970 or its last observation date is unknown.

Note: The data listed for all pairs are accurate, irrespective of the highlight color. The USNO gives a detailed explanation of neglected stars. Click here to go there.

The J2000 coordinates are formatted such that they can be copied into tools such as

An Online Tool that Searches the WDS

Figure1. Initial menu displayed at http://mainsequence.org/html/wds/getListOfDoubles/mkWDS_List.html, to be filled out by user to search the WDS.

An Online Tool that Searches the WDS

Aladin or WikiSky to display the DSS image at that location. **The WDS Id** is a 10 digit string that lists a low precision coordinate of the pair. **The Dsc Id** gives the discoverer's initials or designator, and the number of the pair in their published list. **A mv** is the visual magnitude of the primary. Other bandpasses for a pair are described in the notes column. **B mv** is the visual magnitude of the secondary. **Spectra** is the spectral type of the primary. At times the secondary's spectrum is listed as well. **First and last θ** are the earliest and most recent position angles of the pair, in degrees. **First and last ρ** are the earliest and most recent separations, in arc seconds, of the pair. **First and last Obs** are the first year the pair was observed and the year of the most recent observation. **AKA** (Also Known As) lists other common names for the pair. Comments:

   • **Blue mags** indicates that the pair's magnitude is photographic, Johnson, or other Blue band.

   • **Red mags** indicates that the pair's magnitude is from the Johnson or other Red band.

   • **Dubious** indicates that the pair is listed is probably an error in the original discoverer's listing.

   • **IR mags** indicates that the pair's magnitude is its infrared magnitude. Usually 4-6 mags brighter than the visual magnitude.

   • **Linear** indicates that linear elements for this pair have been determined.

   • **Low precision coordinates** indicate that the precise position of the pair is not known.

   • **Neglected** indicates that the pair is listed as neglected by the WDS.

   • **Orbit** indicates that the pair is in the USNO's orbit catalog.

   • **Optical** indicates that the pair is probably not physical.

   • **Uncertain** indicates that the identification of the pair is uncertain.

   • **Uncertain Position** indicates that the pair's position is uncertain.

   Notes: If a star has an entry in the WDS notes document, the word "Note##" where ## is the number of the note appears in this column. Clicking on it will take you to the text of that note.

Notes

The search results are limited to a maximum of 500 binaries. After 500 binaries have been found, the search stops and the results are displayed.

The WDS is updated on a regular basis. The author attempts to update the database that contains the data shown by this list on a weekly basis as well.

Acknowledgements

References

1) Mason, Brian D., Gary Wycoff, William Hartkopf, Geoffrey Douglass, Charles Worley, 2001. *The Washington Double Star Catalog*, http://ad.usno.navy.mil/wds/