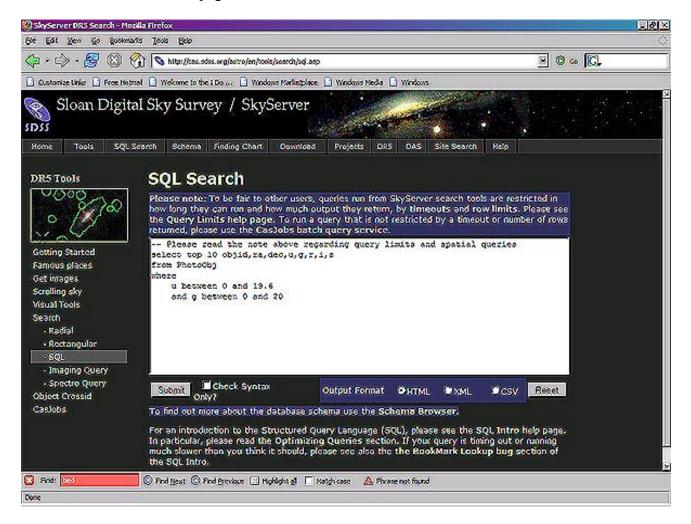# How Do I…
Find cataclysmic variable candidates?

Many interesting objects are hidden among the SDSS data. One such object is a cataclysmic variable, a binary star pair in which the two stars are close together, and one star is a white dwarf. This guide comes from a modified form of a query by Dr. Paula Szkody at the University of Washington, an expert in Cataclysmic Variables.

1. From the astronomers' main page, click on the SQL Search link – the second link in the first column. The page looks like this:

2. In the main window, type the following query:

```
SELECT objID, ra, dec        -- get object ID, ra, dec of binary star

FROM PhotoPrimary            -- From all primary objects (best detections)

WHERE u - g < 0.4            -- Color cut
      AND g - r < 0.7
      AND r - i > 0.4
      AND i - z > 0.4
```
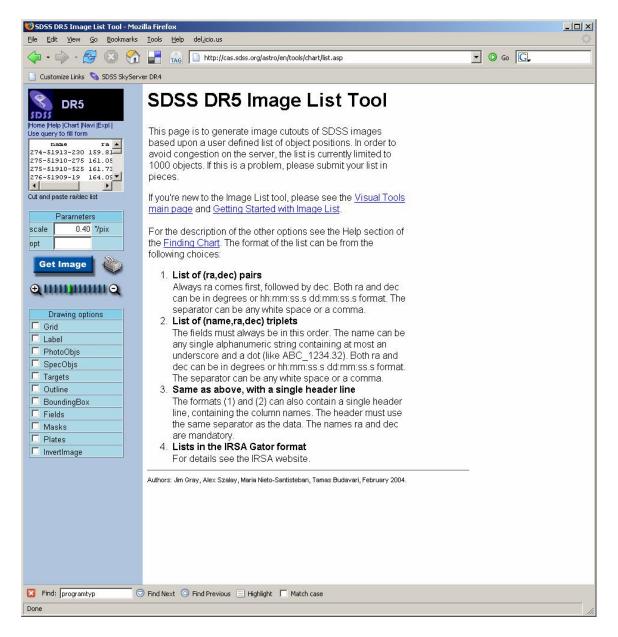
The query returns the object ID, RA, and dec of each binary star.

3. To view the actual binary stars, use the Image List tool. From the astronomers' main page, click on **Image List**. You will see a screen like this:
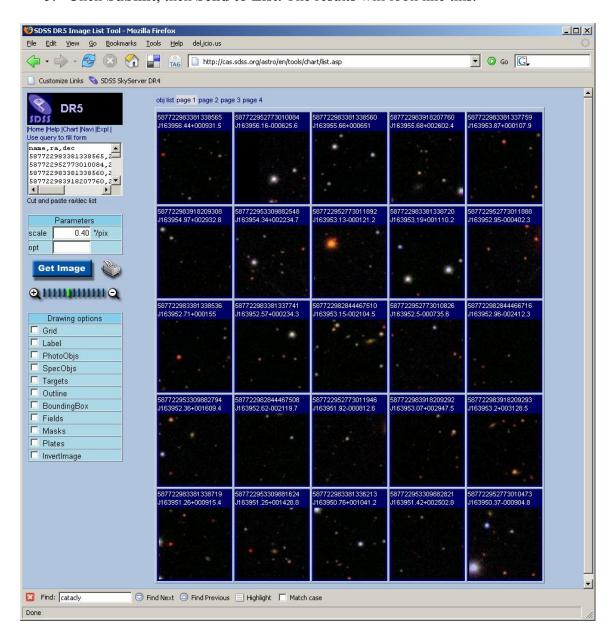
4. Click on the small blue **Use query to fill form** link in the top left of the tool.
   Paste the following query into the main textbox.

```
SELECT top 100 objID as name, ra, dec
                              -- get object ID, ra, dec of binary star

FROM PhotoPrimary             -- From all primary objects (best detections)

WHERE u - g < 0.4             -- Color cut
AND g - r < 0.7
AND r - i > 0.4
AND i - z > 0.4
```

This query is identical to the one from step 2, except that it is limited to return 100 objects.

5. Click **Submit**, then **Send to List**. The results will look like this:

The results are thumbnail images of each candidate binary star that the query matched. Click on the image to go to the Navigate tool to see where the object is in the sky. Click on the name, above the image, to go to the Explore tool to learn more about the object.

6. Remember that these are only candidate objects selected by color; you will have to make further observations to determine if they really are cataclysmic variables.

7. Note that when you run this query in the SQL search tool (as you did in step 2), the query may sometimes time out. To get all results you will probably need to

use **CasJobs** (http://casjobs.sdss.org/casjobs). See the **CasJobs help page** for more information.