

## Lab 5 -Eclipsing Binaries

**Eclipsing Binary (EB)** targets are pre-chosen, and come from Rolling Hills Observatory “Ephemeris Generator” section. <http://www.rollinghillsobs.org:8000> The imaging run, or series will be centered around the predicted Time of Minimum (ToM) of the event. The ToM changes daily, and is the middle of the eclipse. The predicted ToM comes from Mt. Suhora Observatory’s “Linear Ephemerides” section, and is accurate to within several minutes. <http://www.as.up.krakow.pl/main/index.php3?lang=en>

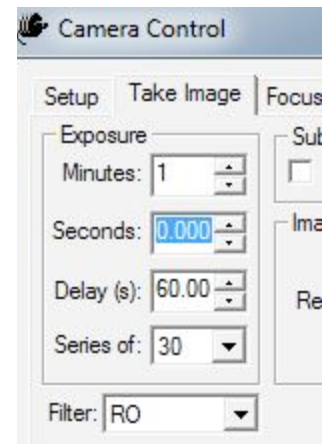
In the **Take Image** tab, confirm the correct exposure and binning of your target, determined during setup. For this example we use 1 minute exposures.

### Determine now, what time to start imaging

Review the predicted Time of Minimum (provided) for your EB. We typically image 30-45 minutes on both sides of ToM, to later create a light curve spanning 60-90 minutes with the Time of Minimum falling somewhere near the middle of the imaging run. One image every 2 minutes is typical, to provide 30 or more data points for analysis in Lab 8.

*For example:* If the predicted ToM is 8:00 pm, and you’re taking 1 image every 2 minutes with an exposure of 60 seconds, in CCDSoft **Take Image** tab choose:

<b>exposure</b>	1 minute	(for each image)
<b>delay</b>	60 seconds	(between each image)
<b>series of</b>	30	(N images)



CCDSOft image tab.

Here we begin imaging at 7:30 pm to finish 60 minutes later at 8:30 pm. ToM occurs half way thru our imaging run. Image download times extend the total time beyond one hour.

### Take the data using CCDSoft

With all image parameters determined and selected, under **Autosave**, create a desktop folder with an appropriate title containing the object name, your name, and date:

*For an Eclipsing Binary:*

ABAnd Pri Alex 091513 = AB Andromeda primary eclipse, Alex, taken 9-15-13

*Be sure **Autosave** is turned on, with your folder selected, or the images will be lost!*

With the autoguider running, hit **Take Series** to begin the hour long imaging run, and save the data to folder. Observe the first couple cycles to confirm everything is working correctly. Each image is displayed, with a running count, and autoguider corrections are shown as usual, in the autoguider tab.