Manually Selecting Sieve Hole Images

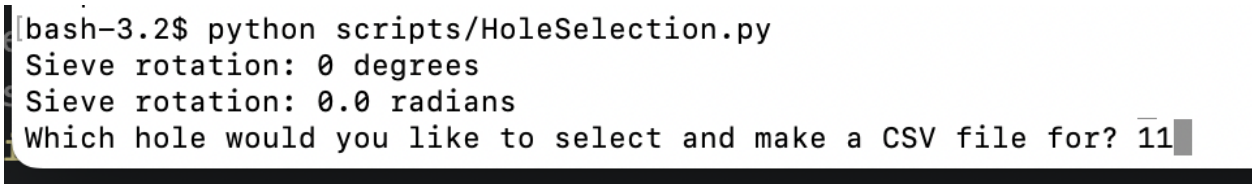
Git pull your magnetic field study directory to get the new scripts.

Type: pip3 install uproot

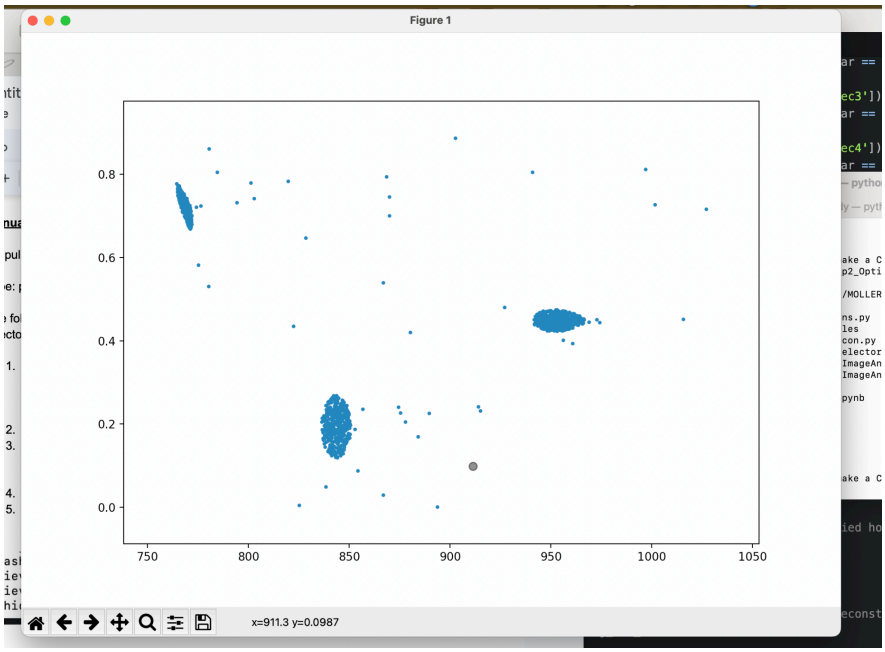
- This step may not be necessary on a jupyter notebook. If you try to execute the script, and it tells you that the uproot module doesn't exist, then this is the command you need.

The following instructions assume you are working from the MOLLER_magnetic_field_study directory. The paths in the scripts will not work unless you execute from here.

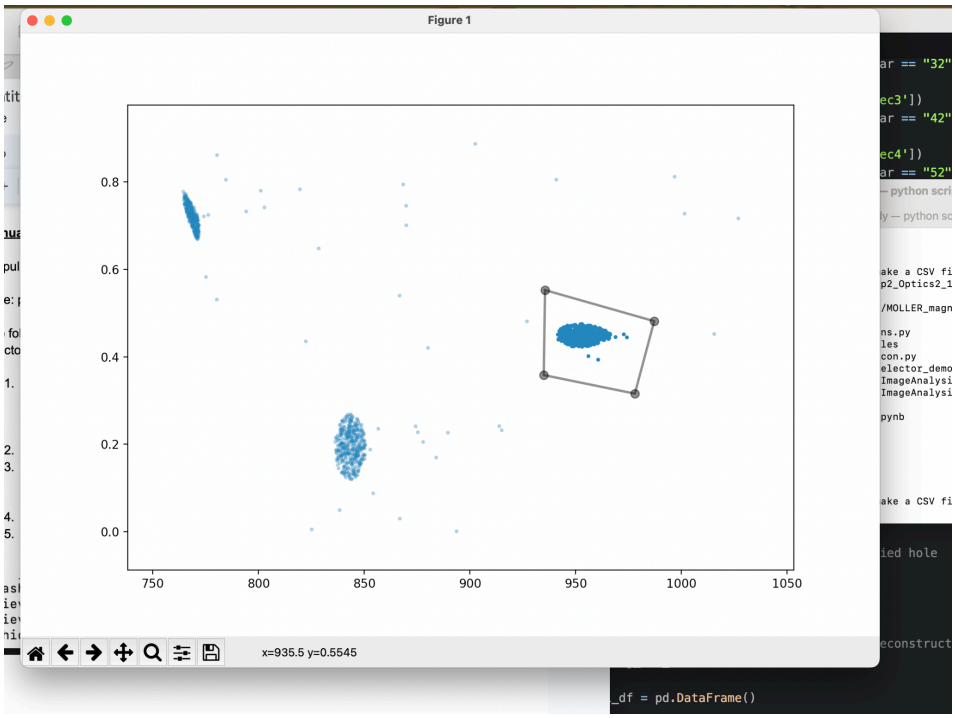
- Create a configuration file. Use scripts/config_files/Pass2_Optics2_elasticC12_Symmetric.ini as a template for all of your configurations.
    - Tip: make sure to save your configuration files with descriptive names!
- When you are ready to select sieve hole images, open scripts/HoleSelection.py
- At the bottom of the script, you will see "main('scripts/config_files/Pass2_Optics2_elasticC12_Symmetric.ini')". Change the input variable in "main" to match the configuration file you want to use.
- Execute your scripts/HoleSelection.py script.
- You will be prompted for input to list which sieve hole you would like to select. Type the hole number you plan to select.



- A window will pop up that looks like this:

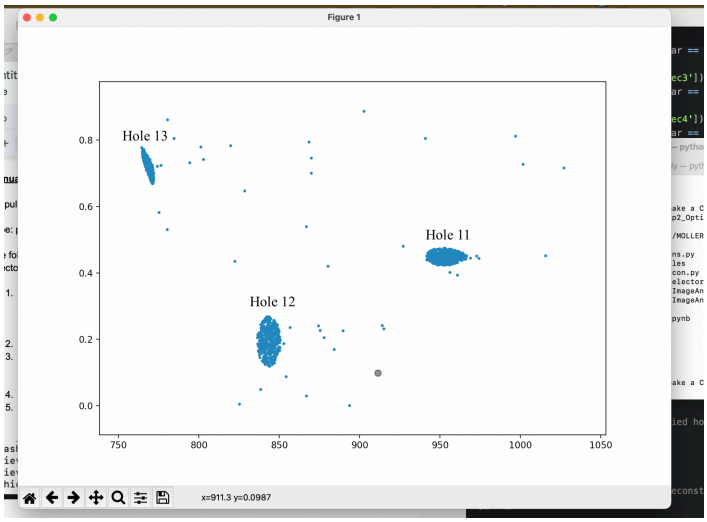


- Click to place points around the hole of interest until you fully encompass the hole image. It will look like this:

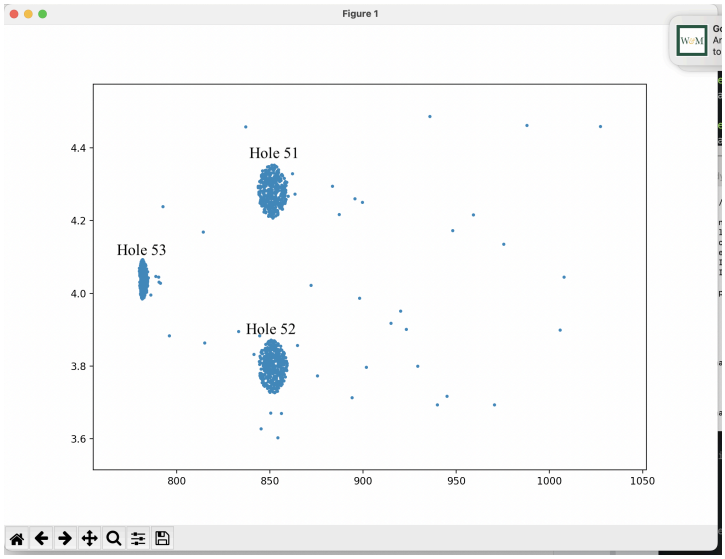


- Once you are done drawing the polygon, exit out of the window. It will then generate and save a CSV file with the points enclosed in your drawn polygon.

NOTE: Select holes from right to left, i.e., hole 11 will be on the far right, hole 12 will be in the middle, and hole 13 will be on the far left. This is because the particles scattered from hole 11 are lower energy than those scattered from hole 13, and therefore, these hole 11 particles spend more time in the magnetic field and are bent more. Refer to the following image:



Furthermore, sector 5 has two holes with equal radial positions. The top hole is 51 and the bottom hole is 52. Refer to the following image:



This script should work for all of the configurations. If you run the ellipse fitting script and see issues with certain sectors, you can manually fit just the holes that were messed up by the other script.