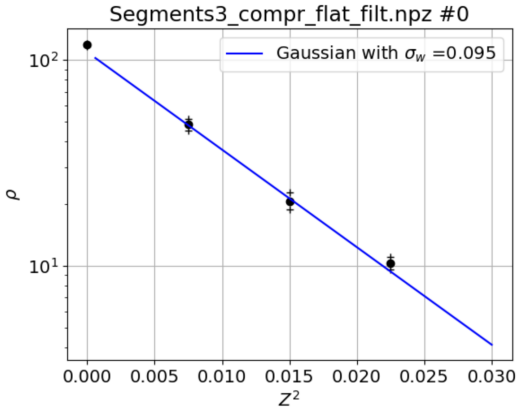
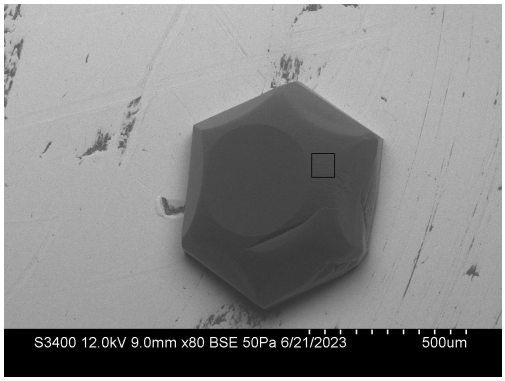
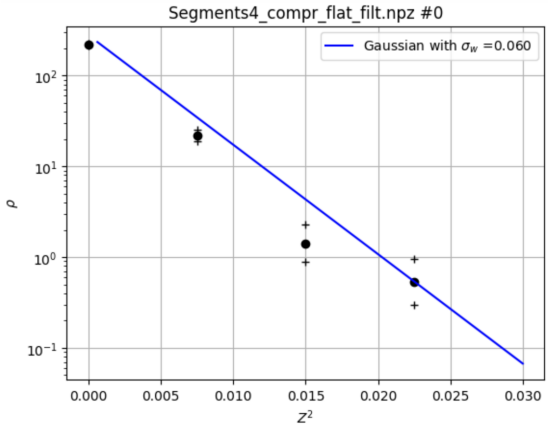
Probability graph of Z2 between basal and pyramidal facets of crystal

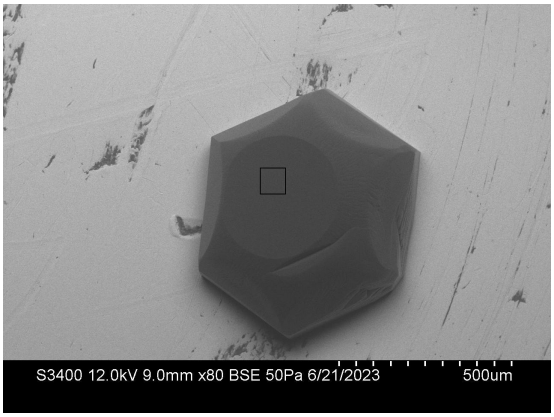




In a ‘rough’ section of an image used for calibration, the slope of the corresponding single variable line of best fit for the probability was 0.095. While this is fairly low as is, we wanted to check to see if that slope would decrease on a smoother surface, indicating that the calculations are somewhat accurate. We ran this calculation on a smoother surface, and the graph produced can be seen below.

Probability graph of Z2 on basal facet of crystal





As we can see, the slope of the corresponding plot is only 0.06, which is significantly lower than the slope of the rougher area. This decrease in slope suggests accurate representation of the roughness through the code.

Idea Moving forward: Obtain data like this for numerous crystal images and record the temperature and pressure at which they were born. Then compare the σ values for all the images, as shown above, and produce an equation to model the roughness statistic (R) as a response to temperature (*T*) and pressure *(P*), like shown below:

$$R = B_0 + B_1 T + B_2 P$$