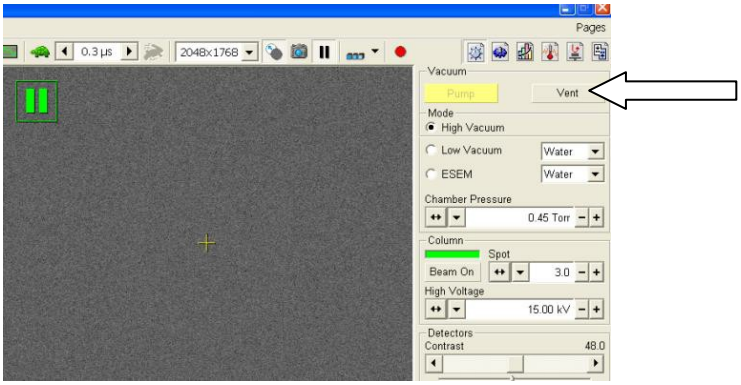
# FEI Quanta 200 ESEM Basic instructions

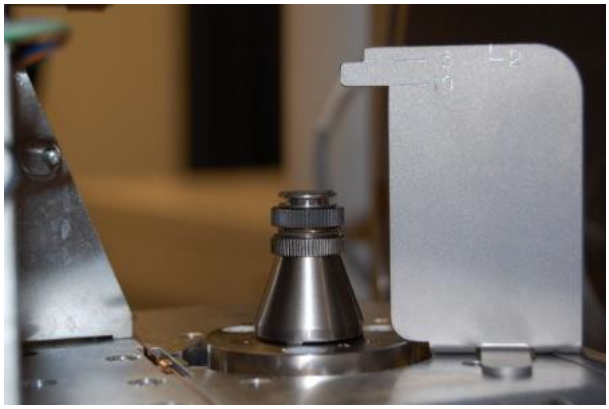
Desktop and then start the UI. If the computer has restarted and you need to log-in, Username: supervisor and Password: supervisor

Log-in to the Microscope using the following- Username: supervisor
Password: QuantaD8376

Vent the chamber by clicking on the VENT button to right side of the window



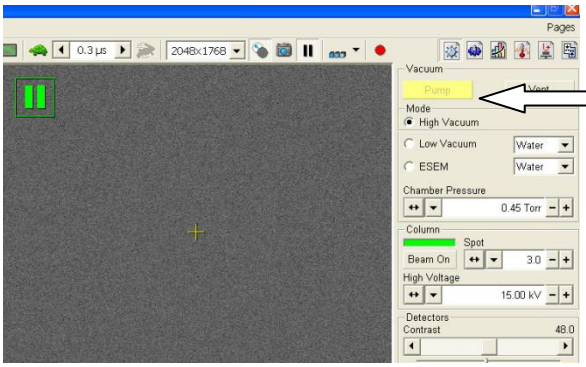

Insert you sample into the chamber in the same method as the XL30 SEM. Using the “Elephant Trunk” make sure that your sample is less than 10mm



Determine the type of sample you have and select the appropriate vacuum conditions you will use. High Vacuum for normal conductive sample and low Vacuum for soft or and uncoated non conductive samples.

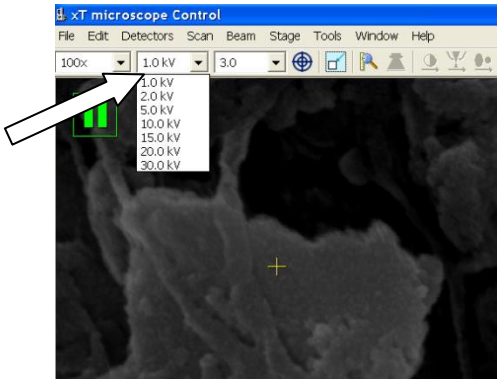
You may now select the vacuum condition for your sample

(High Vacuum, Low Vacuum, ESEM) Then press PUMP.

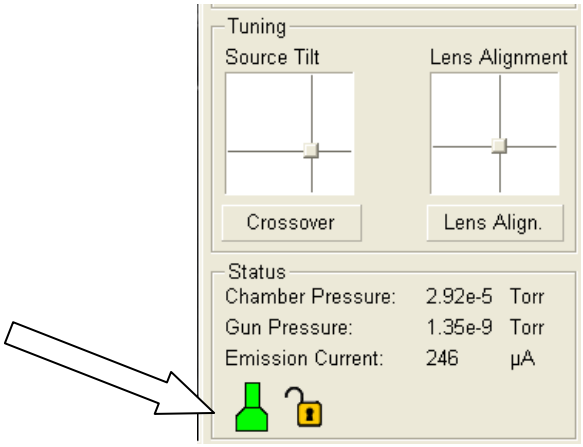



Vacuum buttons

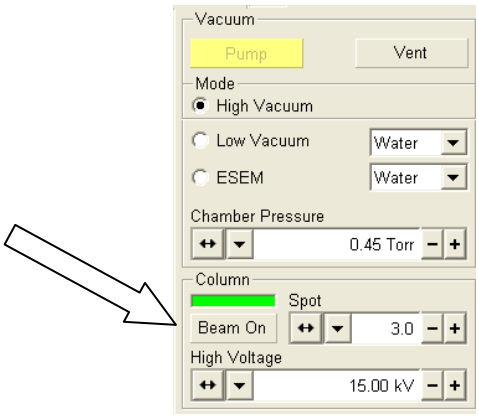
Next, select the right acceleration voltage from the pull down tab located just below the menu bar.



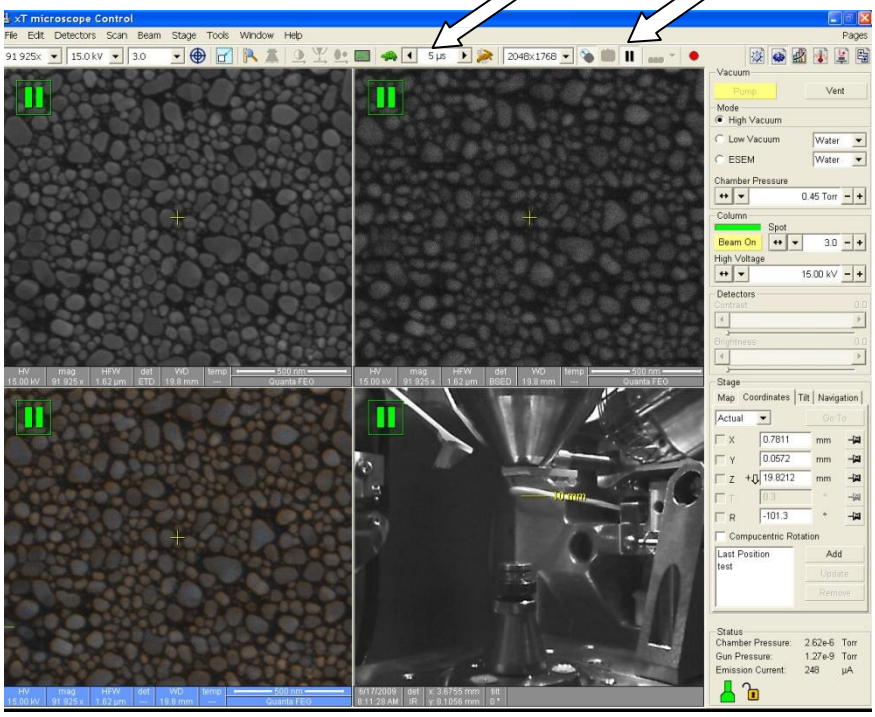

Once the proper pressure has been achieved, the chamber ICON in the lower right side of the screen will be fully green.



Turn on the Beam by clicking on the BEAM ON button




The display should look like this. Scan speed control Pause release button



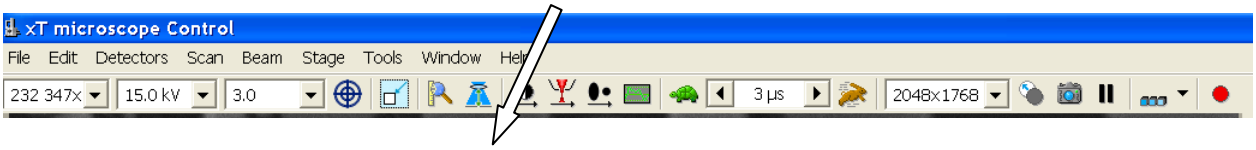

Top left SE image, Top right Backscatter, Bottom Left is the combined SE and Backscatter image and the Bottom right is the chamber view scope. Activate up to three displays at one time by selecting the display and the click on the pause release button. The display will start to scan.

To increase and decrease the scan speeds use the arrow up and down next to the turtle or the rabbit.

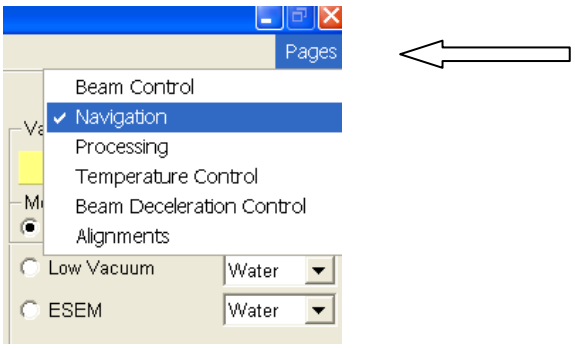
While viewing the chamberscope (bottom right screen) press and hold the scroll wheel button and push the mouse upward to position your sample near the 10mm mark on the screen. It may be necessary to un pause the chamberscope screen first.

Increase the Magnification and focus the SE image by using the USER interface panel shown below. F7 displays a reduced screen for easer real time adjustments. F5 enlarges the active screen to fit the entire window.


Once the image is focused link the Z to FWD by clicking on the ICON on the tool bar

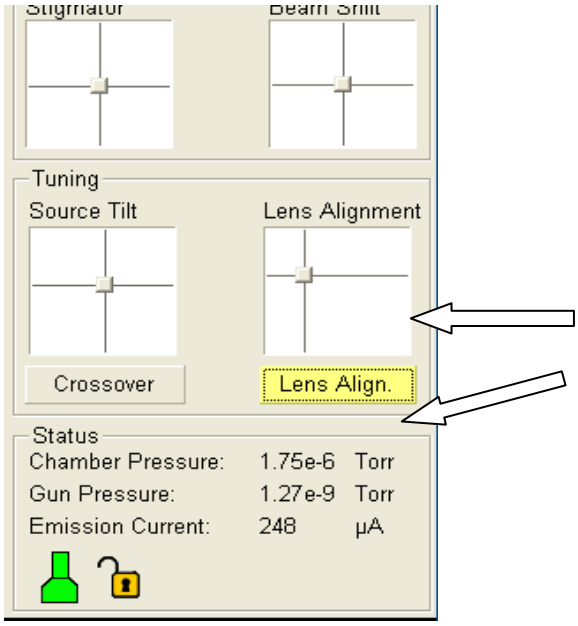



Next select the Navigation Page by clicking on the text “PAGES” top right corner of the display.




For most operations it is recommended that a Z value of 10mm is now set as the working distance.

Increase magnification to at least 1k (higher the better) and focus the image as well as you can. Next select the Beam Control Page and start the Lens align by clicking on the LENS ALIGN button.

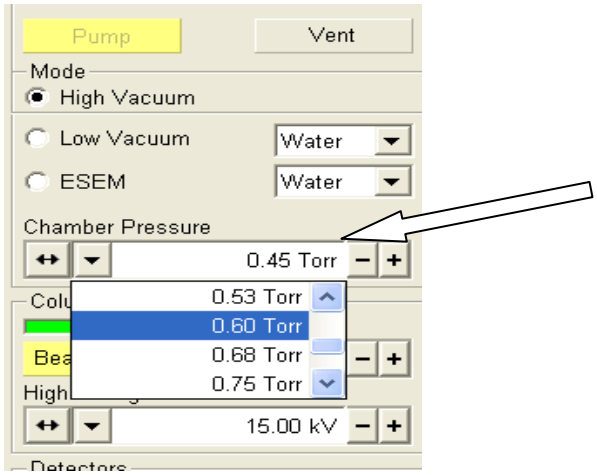



While observing the image, place you mouse over the small square box in the Lens Align and hold it down. Move the mouse and box within the field to reduce movement in the image.

Turn of the Lens Align by clicking on the Lens Align button once more.

Refocus you image and increase the Magnification to above 20k ( the higher the better) and using the User Interface Panel, Stigmate the image using the X and Y controls for sharpest image possible. F7 displays a reduced screen for easer real time adjustments. F5 enlarges the active screen to fit the entire window.

When using the Low Vac mode, it may be necessary to adjust the pressure in the chamber for a high contrast image. Simply adjust the pressure until the appropriate contrast has been achieved. In most cases pressure between .83 and .53 Torr will work well.



**Taking and Saving an Image:**

Once the desired image is achieved, select the camera button on the tool bar to take a picture. Once the scan has stopped a default directory will appear in the Shared Data Folder (PRZ-HTYXWG\Quanta shared data folder). Store your images in the Shared Folder only. Data will be store on the computer on the left side of the operator's consol.

If the images are saved correctly in the shared data folder on SEM computer, you should be able to find your data in the "shared data folder for Quanta" on the computers outside the Quanta room. File transfer is allowed on these computers.

# Warning!!!

Never leave the ESEM in the LOW VAC or ESEM mode, always return the SEM to the HIGH VAC Mode.

**Emergency Information:**

Medical Emergencies: Contact 911 and Public Safety (609) 258-1000
Room / facility emergencies: Contact Public Safety (609) 258-1000
Issues related to the instrument:

1. Contact IAC Staff.
2. Leave system as is, Do Not disable vacuum system.
3. Try to shut off the High Tension.

Audible/Siren Emergency Alerts:
Follow previous steps 2 & 3 and leave the building.

**Emergency Contact Information:**

Nan Yao: Office (609)258-6394; Cell (908) 922-2236 Email: nyao@princeton.edu
John Schreiber: Office (609)258-0034; Cell (215) 431-4670 Email: js51@princeton.edu
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