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SEM User Protocol

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Works for me

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ABSTRACT

How to use the Auriga Scanning Electron Microscope at JIAM

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GUIDELINES

How to use the Auriga Scanning Electron Microscope at JIAM

MATERIALS TEXT

Auriga Scanning Electron Microscope

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ABSTRACT

How to use the Auriga Scanning Electron Microscope at JIAM

BEFORE STARTING

Contact John Dunlap to help arrange a time on the machine – eventually, you will have access to the online

calendar and you can add your desired time. Expect to be on the machine longer than anticipated.

Since electrons beam down onto the surface of your sample, the sample can experience increased charging which will result in your image appearing to have white regions. Consider using gold to coat your samples. The gold coating will dissipate some of that charge effect.

How to:

- 1 After samples have been prepped, and the silicon chip is placed on carbon tape sticking it to the aluminum stub, grab a sample holder in the desiccator vessel usually on the backbench in the Auriga room. The sample holder has 3 screw holes on one side and what looks like a bracket on the base. Use the allen key to secure your samples onto the holder – do not over tighten.
- 2 At the machine, press Vent first – may hear some gas sound.
- 3 Pull open the door gently.
- 4 Put the sample holder onto the dock and then secure the slide bar to the sample holder.
- 5 Close the compartment and then press Store then press Exchange on the keyboard.
- 6 The Transfer button will blink and when done will remain solid green.
- 7 Push the large rod into the chamber – there will be some resistance when the sample holder is on the stage – push gently and then once in place, unscrew the rod from the sample holder – be sure to look at the monitor to ensure that the sample is correctly positioned and is not moving when you start to unscrew the rod.
- 8 After the mount is in place and the rod has been removed hit Resume on the keyboard.
- 9 Start to use the two joysticks
 - The small joystick will move the stage up and down as adjust your working distance – normally you want around 10. It will also tilt the stage. Tilting the stage is not necessary.
 - The large joystick will move the stage in the X and Y plane. It can also rotate the stage. This is critical for aligning your sample under the electron beam. Typically after you find your first sample, you can just rotate to find your next.
- 10 In the lower right of the user interface, make sure that EHT is on. A green checkmark lets you know you are good.
- 11 Double click on the kV = 5 should be good. Having a high kV improves the resolution of the sample, but it also increases the charging – makes sure you use a WD of about 10.
- 12 Brightness should be around 48-49 percent

- 13 Contrast just mess around with it
- 14 When done, hit Exchange on the keyboard – wait for the internal door to open – retrieve sample with screw arm.
- 15 Look for the door to close.
- 16 Then hit vent.