

## Start Up Talos Arctica

1. Check LN<sub>2</sub> airtight, make sure all involved O<sub>2</sub> sensors are working properly
2. Check LN<sub>2</sub> level in **Temperature Control** tab, in flap-out tab of **State**, make sure there is no error to **Recover**, in **Filling** tab make sure **Fill Now** is available
3. Check system vacuum, all items should be green **Accelerator/Column** should be 1/1
4. In **Setup** tab, the button **Operate** and **High Tension** (with 200 kV) should be ON  
check **Gun lens 5**, **Extractor 4350**, **FEG Emission** ~277 uA
5. Ask super-user to **Dock** AutoGrids into **AutoLoader**, and do the **Inventory**
6. Sign in the logbook, with registering the cassette & describing the slots
7. Log out the common user  
Log on to the Talos Arctica computer using your username and password
8. Start the software kit
  - a) Arctica PC, MSL ✗ Click 🟢 Start Server and Applications (UI, FluCam, TIA)
  - b) Arctica K3 PC, start **DM**
9. **\*\*\*Only do this if directed by Dan\*\*\*FEG Registers → Dan\_200kv→Set**
  - a) **Alignments**→ Flap Out→**File**→**4350\_UT\_031417.alg** (select all **Available** on the right column if there is any and move them to **Selected** the left column by click on left arrow →) ←**Apply**  
(these two files are stored under C:/Tecnai/Alg/)
  - b) **C2** aperture, double check, 50 μm for SPA
10. K3 PC → **DM** → **Microscope System** → **Camera monitor** → **Gears Button** → **Quick Scan** → All Status Lights should be green (except 5-8 Slot Sync Status stay gray)  
( If Generate Log is shown, not Gear Button, Menu→**Help**→**UserMode**→**PowerUser**,  
Default setting is stored under C:/ProgramData/Gatan/prefs  
backup setting files are stored under C:/Desktop/prefs backup 17Feb23)
11. Arctica PC → **UI** → **Camera** → **BM-Falcon** → **Insert** (in order to use K3)

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12. **Col. Valves Closed**, double check Objective Aperture or Phase Plate is retracted, click on Slot number (AutoLoader control panel) and press **Load** to load AutoGrid to compustage
13. If **Accelerator/Column** is 1/1, Open **Col. Valve**
14. Find the **Eucentric Height** by setting the right Z-Height, Press **Eucentric Focus** on right hand panel
15. Set Spot Size 5, Nano Probe, SA 45,000x, C2 50,  
Check C2 Stig (**Stigmator – Condenser** should be around x: -0.01697 y: 0.04783)  
Center **C2 Aperture**
16. Set **Parallel beam condition**, **SCREEN DOWN FIRST!!!** Diffraction mode, C2 41.2% & Defocus -0.23e-6, click Diffraction button to quit diff mode and switch back to TEM image mode
17. **Direct Alignments**
  - a) Correct **C2 Condenser** Stigmatism at 45kx +
  - b) Find True Focus at 45kx + (with C2 41.200%)
  - c) PP X, PP Y
  - d) Rotation center
  - e) **\*Note, this is not necessary until just before data collection\*** Coma-free Alignment X (45kx +, > -2.0 um defocus)
  - f) Coma-free Alignment Y
18. Correct **Objective** Stigmatism at 45kx +
19. If using OBJ Aperture, insert 70  $\mu\text{m}$  and center the aperture  
If use Phase Plate, 50 nC for 90° phase shift \*\*\* depends on dose rate, SS\*\*\*

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## Log Off Talos Arctica

1. Bring magnification to 5300x.
2. Spread the beam to full CCD
3. Close **Col. Valve**
4. **OBJ** aperture out
5. **Unload** user's AutoGrid from compustage to AutoLoader, and **Load** slot #1 AutoGrid onto compustage, AutoLoader → Options → Leave cartridge on compustage (checked)
6. Reset the holder (Stage → Stage2 → Open flap-out → Reset → Holder)
7. Close the software kit: Stop **Microscope Software Launcher** on Arctica PC
8. Log off your account  
Log in common user
9. Start **Microscope Software Launcher** on Arctica PC