

FE-SEM Operation

I. Gold Coating

1. Turn the main valve to open to release the vacuum.
2. Place the stage (with the sample properly positioned) into the gold coater.
3. Turn on the power (both the main unit and the vacuum pump simultaneously) and set the coating time (usually 60 seconds).
4. Once the Ready light turns on and the vacuum gauge reaches the marked position, press Discharge to start gold coating.
5. After coating, turn off the power and remove the stage.
6. Turn the power back on, wait for the Ready light to illuminate, and turn the main valve to close.
7. Turn off the power, keeping the gold coater in a vacuum state.

II. FE-SEM Operation

1. Press vent to release the vacuum, place the sample inside, and press evac to start vacuuming. Position the sample (handled by technical staff).
2. Wait 5 minutes to ensure the vacuum reaches below 2×10^{-4} Pa, then press on to activate the voltage.
3. Gradually adjust the voltage in steps (e.g., 0.5 kV $\rightarrow$ 5 kV $\rightarrow$ 10 kV, reaching 10 kV in approximately 10 minutes). Adjust the voltage based on the sample type; higher voltage is not always better.
4. Open the GUN valve (ensure the button light is off).
5. Start with LOG MAG (low magnification) to locate the sample position. Adjust brightness and contrast using ACB and fine-tune the focus. When switching to SEM mode, set the magnification to 500X and turn off LOG MAG.
6. Adjust the WD to 8.00 mm, ensure the ZFC function is enabled, and use the control knob to adjust the Z-axis height until the sample image is clear (Note: If ZFC is off, the control knob will rotate the stage instead).
7. Increase magnification, refine focus, press Photo to capture images, and save the data.
8. After observation, close the GUN valve, turn off the voltage, and press HOME POSITION and SPECIMEN EXCHANGE.
9. Burn the data onto a CD and remove the sample (handled by technical staff).