

TEM

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Instructions for using JEOL 100CX (the brief version)

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1. Fill liquid nitrogen into the big tank at the back of the TEM and the small cylindrical tank on the side.
2. Load the samples
 - a) Pull out the sample loader gently to a stop, turn counter-clockwise to a stop and then all the way out.
 - b) Load the sample: position 1 is proximal to the handle and position 2 is distal.
 - c) Push in the sample loader gently to a stop. Wait for 2 puffing sounds (takes about 1 minute) and the very gently turn clockwise and then all the way in.
3. Turn on the camera and start the analySIS software on the computer. Turn the filament up slowly to 6 (or wherever the metal pin stands).
4. Find the sample at low mag by pressing the "low mag" button (if the sample is not already there on the screen). When under the low mag mode, the objective aperture needs to be in position 0 – this can be achieved by pulling out the handle corresponding to objective aperture and turn counter-clockwise. Adjust condenser (using the coarse knob) accordingly until desired brightness/field is achieved.
5. Once the sample is located, return to the normal mode by pressing the "mag" button. Put objective aperture back in position 2 by turning the handle clockwise.
6. To view the image on computer, press the red button on the camera's remote control. Zoom in by turning the "magnification" knob. As a general rule, we need to condense the beam when zooming in, and diffuse the beam when zooming out (done with the "condenser" knob). View the sample with camera 1 (low resolution), and take pictures with camera 2 (high resolution).
7. Before taking a picture, adjust the "focus" knob (both coarse and fine) until sample is in focus. Condense the beam into a small spot (not achievable under high mag – in this case, into a spot as small as possible) and adjust the position of the spot with the "alignment" knob until the spot is roughly at the center of the image. Diffuse the beam until the entire image is lighted up, but no more.
8. Take a picture and set magnification. Add the scale bar and save.
9. Repeat until the desired number of pictures have been taken.
10. To change between positions, switch to "low mag" mode as before and roll a knob to the left of the TEM (between "position 1" and "position 2"). There is an indicator that shows where the current field of view is (on position 1, on position 2, or in between).
11. To shut down the system, turn down the filament to 1. Then unload the samples (as you would load samples, except now you are taking the grids out). Shut down the camera but do not shut down the TEM nor the computer.