

CM200

Core Status: new users must complete 2 trouble free training sessions and pass the drivers test to work independently during Core sessions.

Flex Status: core users must complete 5 trouble free sessions to work during Flex sessions.

To reserve a CM200 session, go to www.ncem.lbl.gov, click on "Microscope Scheduling", use proposal number and password to log in. You may only sign up for one Core session at a time.

To cancel a session, email your request to the technical staff in charge of the microscope.

CORE LICENSE TEST

Safety

- Understand emergency shut down procedure
- Know emergency contact numbers
- Know where LN protective equipment is
- Find updated operating instruction and notice (?)

Instrument Preparation

- Check V7 closed and SSC on and in cooling
- Check HT on at 200kV. If off, select 200kV and press HT on
- Turn on power to camera control and CRT monitor

Fill up LN in ACD

- Wear protective gear (goggles, mask, gloves)
- Check glass window covered

Load specimen in holder

- Know type of holders
- Place holders properly on provided stand
- Load sample and tighten retaining screw gently
- Check sample snugness by gently tapping the big end the holder
- Check the pin protruding

Insert holder

- Check IGP is below 22
- Insert sample to pump down position
- Choose proper holder in CRT screen and connect cable
- Wait until red light goes off
- Rotate and insert holder into column properly

Start filament

- Wait until IGP is 22 below
- Follow filament warm-up procedure (Preset Extraction, and then turn 3 clicks every 30 seconds)
- Check IGP<22, then slowly open V7

Carry out basic alignments

- Find beam
- Set choose appropriate gun lens slowly
- Set and align appropriate C2 aperture
- Eucentric height
- Gun tilt, gun shift and condenser stigmatism
- Align GIF
- Pivot points
- Rotation center
- Rough objective stigmatism

TEM operation for HREM, Nanoprobe EDS, EELS and energy filtered images

- HREM alignment
- EDS spectra and profiles (requires separate training and qualification)
- EELS spectra and energy filtered images (requires separate training and qualification)

Recording images

- Acquire images on slow scan CCD camera
- Acquire images on plates

Shut down

- Turn off CCD camera control and CRT monitor
- Know additional shut down procedures for the last user of the day
- Return to HREM mode and select largest C1 aperture, *if needed*
- Close V7
- Remove EDS detector, *if needed*
- Reset holder
- Remove holder properly, unload sample and put in protective housing
- Cover window

Additional procedure for the last user:

- Know how to go to standby mode

Record session in log-book

- Record number of plates taken and any problems

Name _____

Date _____ **Proposal #** _____

Pass _____ **Fail** _____