SEM4 Hitachi TM3030+ Operating Instructions.

Start up:

- Turn on power switch on right side of instrument.
- Turn on computer.
- **Power Up video** [https://youtu.be/6MtTPvK7tAs](https://youtu.be/6MtTPvK7tAs)

- Put sample onto stage with double sided carbon or copper tape or switch to stage with holes for SEM stubs and insert stub into hole.
- Adjust stage height by unscrewing locking plate at bottom, use main post to move stage up/down so that tallest part of the sample is ~2 mm under the overhang on the black stage holder.
- **Stage height video** [https://youtu.be/lQjXF6aHxls](https://youtu.be/lQjXF6aHxls)

- Push Evac/Air button (big white button) to introduce air into the sample chamber. When air button is solid green, OK to open.
- Put stage with sample into instrument and tighten set screw with allen wrench.
  - **Be mindful of clearance on sample when shutting the door.**
- Push Evac/Air button (big white button) to evacuate the sample chamber. When evac button is solid blue, chamber is pumped down.
  - **May need to hold chamber door shut while it begins pumping down.**
- **Sample loading video** [https://youtu.be/zmGaTrmRWCG](https://youtu.be/zmGaTrmRWCG)

- Open Software TM3030Plus (instrument must be on before you open the software).
- Once blue light stops flashing, hit “Start” in the application, this powers filament and autofocuses.

Imaging

- Use autofocus, auto brightness and contrast buttons to get image focused and adjusted.
- Move sample using big X Y knobs on front of instrument. When zoomed in far enough, double click on image moves center.
- Voltages: 5, 15kV, EDX mode (15kV + boosts current)
- Detectors: SE (secondary electron), BSE (backscatter electron), mix (50-50 SE, BSE)
- Modes: regular, charge reduction

Shut down

- Hit Stop to turn off filament.
- Push Evac/Air button (big white button) to introduce air into the sample chamber
- When air light is solid green (not flashing), open chamber and remove the sample
- Close door and push Evac/Air button to evacuate the sample chamber
• Once blue light stops flashing, close the TM3030Plus application
• Shut down computer
  o **Do not put to sleep. Full shut down.**
• Turn off the SEM (flip switch) -software must be closed before you turn off the instrument.