# Standard Operating Procedures

The following are the rules and procedures to be followed when operating the focused ion beam/scanning electron microscope system.

# 1. Authorized personnel

Only persons who have been trained in the use of the focused ion beam/scanning electron microscope system, and whose names are on the list of Authorized users may use the focused ion beam/scanning electron microscope system. Users must agree that they understand this document, and will following these standard operating procedures.

# 2. Personnel protective Equipment

As the temperature of the laboratory is low, users must pay attention to keep warm.

# 3. Allowed samples

Inorganic materials and melt materials are allowed. The pollution samples ( organic materials and low melting point materials ) and strong magnetic materials are not allowed. The samples should be conductive. If not, please coat the conductive film before the experiment.

# 4. The procedure of exchange specimen

To exchange specimen before or after experiment follow these steps.

1. Click the Vacuum module/ Vent button. ( If the venting valve closes before the chamber is at the atmospheric pressure, the door is not possible to open. Don’t open it roughly, click the Vent button once more to open it .)
2. When vented, open the specimen chamber gently and place a specimen into the specimen holder. Secure the specimen stub with an appropriate hex-wrench unless a spring-clip holder has been used.
3. Close the specimen chamber door and click the Vacuum module/ Pump button.

# 5. The procedure of SEM operation

Once the vacuum is ready, you can take SEM images as follows.

1. When the pressure is higher than 3×10-3Pa, take the Nav-CAM photo and find the sample you’re interested. Double click the sample in Nav-CAM quad.
2. Select an appropriate detector(like SED) and resume the chosen quad. Click the Column module/ Beam On button to ramp up the accelerating voltage.
3. An imaging appears in the active quad. Choose the highest specimen point and bring it to the 10mm Working Distance. Focus the interested region and Link Z to FWD.
4. Adjust to a suitable magnification, optimize the imaging using the Focusing, Contrast & Brightness, Astigmatism Correction etc.