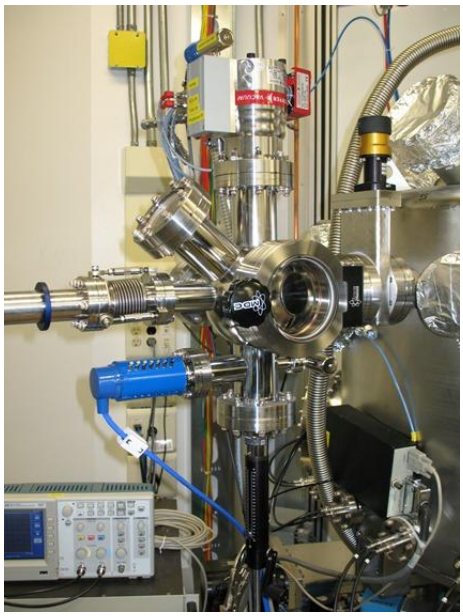
RSXS Loading Samples

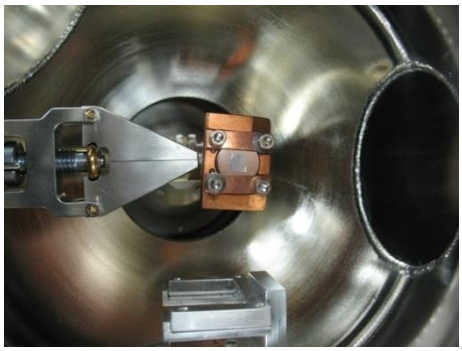
Loadlock venting



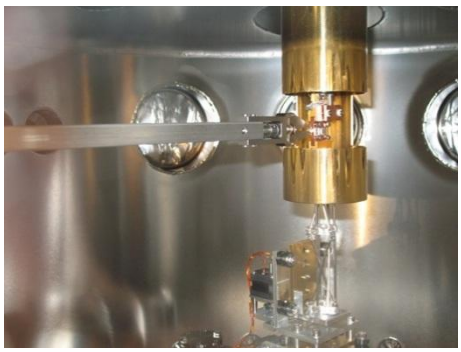
1. A UHV loadlock is used to load or store up to 3 samples under vacuum.
2. Before venting the loadlock, close the Photon Shutter 4, then close the gate valve between the beamline and the RSXS Endstation.
3. Confirm the manual gate valve between the loadlock and the scattering chamber is closed.
4. Turn off the Ion Gauge on the loadlock; turn off the small turbo pump on the loadlock, then turn off the rough pump connected to the small turbo pump.
5. Wait about 9 minute. The turbo pump will be vented automatically.
6. Open the loadlock door to load or take out samples on the sample stack.

Loadlock pump down and transfer sample

1. Close the loadlock door.
2. Turn on the rough pump, then turn on the small turbo pump.
3. When the turbo pump is at full speed (1500Hz), and the convectron gauge shows 0, turn on the ion gauge on the loadlock.



4. Usually it takes about an hour to reach low 10^{-7} Torr. Only transfer sample when the pressure in loadlock is less than 5×10^{-7} Torr.
5. The magnetic transfer arm has two drives. Rotating the front drive will rotate the sample. Holding the front drive while rotating the back drive will open/close the jaws.
6. Using the transfer arm, pick up one sample from the sample stack. Lower the sample stack.



7. Open the manual gate valve between the loadlock and the scattering chamber.
8. Move Theta (th) to 55°. Insert the sample into the sample socket in the scattering chamber.
9. Open the jaws of the transfer arm and release the sample.

10. Pull the transfer arm all the way back and close the manual gate valve.
11. Move Theta (th) to 150°. Insert the vacuum screw driver to tighten the screw on the sample socket to secure the sample in place. If the screw doesn't catch sample holder, use the edge of the screw driver to pull back the sample holder and try again.
12. To remove sample, move Theta (th) to 150° and loosen the screw on the sample socket. Then move Theta (th) to 55°.
13. If the loadlock vacuum is good ($<5\times10^{-7}$ Torr), open the manual gate valve and take out the sample using the transfer arm.