1 Objective:

This Standard Operation Procedure states how to use 10 deg beam line for fabricating micro/nano structures on resists.

2 Responsibilities:

2.1 Director / HOD / PI

The Director/HOD/PI has overall responsibility for ensuring a process is designed for the safe to fabricate micro/nano structures at 10 deg beam line.

2.2 Designated Person

There shall be a designated person to oversee the correct procedures of fabrication micro/nano structures at 10 deg beam line.

2.3 Staff/ Research personnel

a. Users shall attend appropriate training on the safe use of 10 deg beam line.
b. Users shall report any injuries, defects or breakdowns to their supervisor.

3 Personal Protection Equipment

When handling samples during operation at 10 deg beam line requires special protection equipment including: rubber gloves.

4 Procedures

4.1. Sample exchange in 10 deg chamber

4.1.1. Press home on ion scan and switch off the X-Y-Z stage power supply.

4.1.2. Switch off the power supply for the CEM. Reduce RBS and or PIN bias to 0V.

4.1.3. Close the gate valve and the beam line valve to separate the sample chamber from the beam line and the accelerator and vent the chamber.

4.1.4. Take out the sample holder from the chamber.

4.1.5. **Wear gloves while handling samples and sample holder!**

4.1.6. Transfer the sample holder in the chamber.

4.1.7. Close the venting valve and start roughing the chamber.

4.1.8. Wait until the chamber pressure is lower than 2*10e-1 mbar, close the roughing valve and open the gate valve to the TMP.

4.1.9. Switch off the roughing-pump.

4.1.10. When the pressure in the sample chamber is lower than 2*10e-5 mbar, the stage can be switched on.

4.2. Running experiment

4.2.1. **Switch on the stage and run the initialize stage programme**.

4.2.2. Bias your required detectors RBS <20V, PIN =10V, CEM extra Bias <250V.

4.2.3. When using CEM keep the current below 1 pA

4.3. Shutting down process

~~4.2.4.~~4.3.1. Put in Faraday Cup 2.

~~4.2.5.~~4.3.2. Turn off Blanking Power Suppler and terminate connections.

~~4.2.6.~~4.3.3. Follow 4.1.1 – 4.1.4 and take out your sample.

~~4.2.7.~~4.3.4. Follow 4.1.7 – 4.1.10 and pump down the chamber

~~4.2.8.~~4.3.5. Close the 10 deg beam line valve