

## Online EBSD, User Memo

- Please pay attention to the sample height and fix the sample well on the holder to avoid any potential trouble at large angle tilting up to 70 degrees.
- It recommends to restart SEM and EBSD PCs to avoid communication trouble.
- Recommended EBSD settings: HT 20keV, 20 mm WD and tilting angle at 70°.
- Turn on the “Dyn. Focus” and “Tilt Corr.” under the SCANNING → ROTATE/ TILT menu to achieve the maximum focus range from the sample.
- Turn off the “Tilt Corr.” and while in the chamber view mode, slowly insert the online EBSD detector (the offline detector has a black coloured handle).
- Turn the SEM “Switch Box” to EBSD. Turn on “TSL MSC-2200 Control Box” and set at “SEM” side. Start the “TSL OIM Data Collection” (TSL OIM-DC) software from the online EBSD PC.
- Click “Live Video” (see on next page) from TSL OIM-DC to get the detector background image on the floating “Camera” window.
- set the SEM at relevant lower Mag with a faster scanning speed so that no any EBSD signal enters the live background image.
- From the NORDIF CD program, turn on “High Gain” and choose the suitable settings for “Binning” and “Exposure”, which is always a trade-off together with the Aperture and High Current settings in SEM. The basic rule is to get a good enough EBSD quality (Binning) with a possible shorter exposure time.
- Click “Collect” to get “Background Image” in a new floating window. If OK, turn on “Background Processing” from NORDIF CD. Close the floating “Camera” window, and then minimize NORDIF CD window.
- Find the interested region at a suitable Mag from the SEM side. From “TSL MSC-2200 Contral Box”, switch to “OIM” side.
- Shift to TSL OIM-DC to set up the sample phase database under the “Phase” menu. Then from the “Interactive” menu, click “Capture” and key-in the SEM Mag to get that interested region from SEM into TSL OIM-DC.
- Moving mouse in the interested region to get one higher quality EBSD pattern by mouse left-click.
- Under Calibration menu to choose “Calibrate”, that will pop up a new Calibration window. To follow the calibration steps there, get the highest CI (confidence index) by slightly moving PC (pattern centre) around. To click “Save” this calibrated information to guide the rest of EBSD data collection.
- Click “Scan” menu and choose the EBSD scan area by mouse left-clicking and holding. Then in the new “Scan Properties” window to set up “Scan File”

(where to save), “Data Saved” (normally as Orientation), Mode (Hexagon or Square) and “Step” (which is a trade-off between the total EBSD scan time and EBSD resolution, and “Estimate Scan Time” is very helpful to decide this).

- Click “Run” and wait for the selected area EBSD data collection to be finished.
- When finishing your EBSD work, the EBSD detector must be retracted back first before the sample holder is tilted back, etc.

