

USERS GUIDE TO HITACHI FE-SEM

(NB, if you move hardware detectors (BSE&EBSD) during operation, HV must be turn off first)

1. Press Ctrl+Alt+1.
2. Log in to the PC-SEM computer with your personal password.
3. Fill in the log. Remember to write in your project number.
4. Make sure that the sample table is in exchange position. X= 40, Y= 25, Z (Working distance)= 15, Tilt and Rotation = 0°. Z, Tilt and Rotation can only be reset manually, use the « home » button to reset X and Y.
5. Make sure that the backscatter detector is pulled out.
6. In the panel under the column, make sure that SC. AIR LOCK is in close position.
7. Put on gloves.
8. Assemble the sample holder, and make sure that the sample does not exceed the mark on the height gauge.
9. Push the « AIR » button to open the Sample Exchange Chamber (SEC).
10. Fasten the sample holder to the installing bar and place it in the SEC with a click.
11. Close the SEC and push the « EVAC » button to evacuate the SEC.
12. Take off your gloves and throw them in the garbage.
13. Flashing SEC means you can open the valve between the Sample Exchange Chamber (SEC) and the Sample Chamber (SC).
14. Place the sample holder in the clips on the stage. Loosen the installing bar and pull it out of the SC (click).
15. Close the valve between SEC and SC.
16. Set SC. AIR LOCK from CLOSE to AUTO OPEN.
17. Choose acceleration voltage in the menu « Setup - HVControl». Start the microscope high voltage with the « ON » button.
18. Choose the signal from the SE detector. 
19. Adjust brightness and contrast.
20. Choose probe current. 
21. Choose your working distance (SE : min. 5mm, BSE2: min. 8mm)
22. Focus first at low magnification then at high magnification.
23. Adjust astigmatism with the sample at high magnification first with the focus then with the stigmators (x and y) and finally with the focus again.
24. If you are not satisfied with the resolution, open the alignment window and follow the alignment procedure using the alignment x/y handles. 
25. To get an image, push HRCapture. To set image parameters go to “image – HRCapture”.
26. Save the image to the D-directory or map your network drive and save it there.
27. To finish, turn off the Accelerating voltage.
28. Turn the AIR LOCK VALVE from AUTO OPEN to CLOSE.
29. If you have used the BSE2-detector or the EBSD-detector you must move them back.
30. Set the stage in exchange position (X, Y, Z, R and T).
31. Put on gloves, open the valve between SC and SEC and take the sample out in the SEC with the installing bar.
32. Close the valve between SC and SEC and push AIR to open the SEC.
33. Take the sample out of the SEC, loosening it from the installing bar, close the SEC and push EVAC to evacuate the SEC.
34. Log out of the computer (make a note in the log if you’ve had trouble with the equipment)
35. Turn off the computer screen and throw the gloves in the garbage.

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