Part III: EELS alignment and acquisition

After the alignment in TEM and STEM mode, to use EELS in STEM mode:

1. Lower the Screen
2. Open DZM script in DM: **Align EELS**
3. Stop search in Digiscan and **move beam to vacuum**
4. Make sure **S.E. Aperture 650 µm** is active
5. In **Align EELS** window, select **MCR Slit** = 60 µm adjust **Slit** to obtain a bright spectrum caustic on the screen.
6. Choose the **Dispersion** value (0.2, 0.1 or 0.05 eV/ch) in Align EELS window
7. Shift zero-loss peak (on screen it is really a line) to the left of the center of the small screen with shift X and shift Y in Align EELS window.
8. Set **MCR Slit = 0.5 µm**
9. Check probe current under **Setting/ Dose Calibration** <15 pA for 0.5 µm . Type (~300) in **MCR Fine**, select **Fine Active** to reduce the probe current if necessary.
10. Click on **EELS in DM** (Auto filter tab)
11. Set EELS energy = **0 eV** and exposure time to **0.05 s** in EELS, click **View**
12. If the spectrum is red or yellow, increase MCR Fine until it becomes green.
13. In the spectrum viewing window, change image display to **survey whole image**
14. Align ZLP to zero by **Shift X** and **Shift Y**
15. Focus ZLP by adjust **FX** and **FY** (make it straight, symmetric and thin)
16. After ZLP is aligned, stop viewing and **move beam** to the region of interest
17. To acquire an EELS spectrum, set energy offset and acquisition time. Set MCR slit to **0.5 µm slit** for **Low-Loss** or **60 µm slit for Core-Loss** in Align EELS window.
18. To obtain a spectrum Image, first select **Assign Image** in Spectrum Imaging tab. Assign a ROI by a selecting tool, adjust the DigiScan paramters, select slit and choose Low-Loss or Core-Loss in Acquire EELS window, click start to acquire.
19. Click EFTEM in AutoFilter tab to quit EELS mode