Tutorials EPD with MAUD

What you need to start?

1. Basic knowledge on handling MAUD

2. A structure = download the structure from the cif file (Daniel website) corresponding to TiO2 (rutile).

3. A data file = in Electron Diffraction usually an image obtained from your TEM camera.
    a. What shall you do with your image? Have a look to the Supplementary Materials we had written especially for you in our article in Acta A on EPD analysis with MAUD.
    b. The important information you need to know is the size of an individual pixel of your TEM camera. This may vary depending on the camera type. Here for an ORIUS GATAN CCD camera the pixel size in 0.0074 mm.

    Download the tiff file.

4. Instrumental Parameters?
    a. Electron diffraction = wavelength? 200kV Accel. Voltage = 0.0251Å.
    b. Flat Transmission Image / 2 Theta
    c. Apparent distance specimen/detector? SHOULD BE CALIBRATED (see lecture). Here take 109.9.
    d. Profile parameters? SHOULD BE CALIBRATED (see lecture). You can use the following values as a good guess:
        i. Caglioti 0 / 1 / 2: 3.3E-04 / -2.5E-02 / 3.2
        ii. Gaussian 0 / 1: 1 / 0

5. Step 0 : enter the above parameters in the MAUD program (maybe I forgot some … we will see!) and start to import the structure and the data from the tiff file.
    a. Look at the imported data in the Plot and Plot2D panel. Are you happy with it?
    b. Add background peak and try to fit it manually.
    c. Refine height + polynomial background values.

For the rest (a lot more to do!) we will see this together.