FOCUSED ION BEAM SYSTEM: HITACHI FB-2100

BEAM CALIBRATION PROCEDURE

This procedure assumes the following:

1. The calibration sample is loaded on the side loading stage.

Procedure

1. Click **HV** icon in software interface to turn on the high voltage. Be sure to allow time for tip conditioning.

2. Move sample up to working position (5.62 mm).

3. Open **S.C. AIR LOCK VALVE**.

4. Align viewing beam (40-0-30):
    a. Click **Column Adjustment** button at the top-left corner of the interface.
    b. Select **40-0-30** under **Beam Name**.
    c. Set **magnification** to **2.0K**, and **Zoom** to **x1**.
    d. Turn on image scan with the **play** button. Pan the sample until there is a feature visible on the grid on which to focus. Use the arrow buttons under **Stage**, or enter **X,Y** positions and press **Go** in the **Stage** tab, or click in the white or green region under the **X/Y** region in the **Stage** tab.
    e. Adjust focus slider, first **Coarse**, **Medium**, and then **Fine**.
    f. Adjust **Stigmator XX** and **XY** for best image quality.
    g. Readjust focus.
    h. Repeat (f) and(g) until optimal image obtained.
    i. Turn on **Wobbler**.
    j. Adjust **Aligner X** and **Y** until image motion minimized.
    k. Repeat (f) and (g) until optimal image obtained.
    l. Press **Register** button to save beam calibration data.

5. Align remaining beams to be used (suggested beam use):
    a. 40-1-520 (rough cutting)
    b. 40-1-300 (rough cutting and rough thinning)
    c. 40-1-150 (cutting and thinning)
    d. 40-1-80 (cut probe)
    e. 40-0-80 (deposition)
    f. 40-0-150 (deposition)
    g. 40-1-30 (fine thinning)
    h. 40-0-30 (final cut)

    Use the same location on the TEM grid so that the focusing plane of each beam is the same as 40-0-30.

    The method is exactly the same as aligning 40-0-30, except that you must also adjust **Deflector Shift X** and **Y** so that all the beams align in X,Y with the viewing beam (40-0-30).

    When complete, select **File->Quit** to close the **Column Adjustment** sub-program.