FOCUSED ION BEAM SYSTEM: HITACHI FB-2100

TEM SAMPLE PREPARATION PROCEDURE

This procedure assumes the following:

1. Bulk sample is loaded on the SEM stage.
2. **HV** is on and the tip is conditioned

Procedure

1. Find region of interest:
    a. Select viewing beam 40-0-30.
    b. Use stage controls to pan to target area.
    c. Adjust stage Z height to set focus. If the sample point is focused on the 40-0-30 beam, then all the beams will be in focus.

2. Click **Fabrication** button at the top of the software interface to open the fabrication sub-program.

3. Set **magnification** to 2.0K.

4. Click the square icon at the top-right corner of the left-hand panel. This captures an image on which to overlay the fabrication diagram.

5. Select your deposition and sputtering regions:
    d. Use **File->Open** to open a pre-saved cutting scheme (fib-ws), or
    e. Use the **Deposition** and **Sputtering** buttons at the top of the **Fabrication** sub-program to draw boxes that represent regions to be cut or deposited upon.

    For details of the recommended deposition and sputtering regions to prepare a TEM sample, refer to the document titled "FB-2100 Micro Sampling High-Speed Processing Procedure".

    When you create a "sputtering figure" or "deposition figure" you must configure a number of parameters:

        i. Interlace: set to "none" for sputtering, and "8" for deposition.
        ii. Dwell time: set to 3.0 for sputtering, and 0.5 for deposition. It is also possible to set it higher for sputtering (e.g. 75) and do a single pass (see v. below)
        iii. Width/height: as needed
        iv. Material: as needed

v. Time/Depth/N: determines how deep the cut is made. If your "material" is available as an option, you can use the "depth" setting. Otherwise you must select a cutting time or number of passes (N).
vi. Scan: set scan direction and pattern.

f. Use **Tools->Pattern List** to re-arrange the cutting order of sputtering and deposition patterns, as needed.

g. Select the figures you want to include in the fabrication run. Click the "double arrow" icon at the top of the fabrication panel and:

i. Drag a box around the figures, or
ii. Left-click the figures, one by one

6. Click the blue **fabricate** icon to begin the production run.