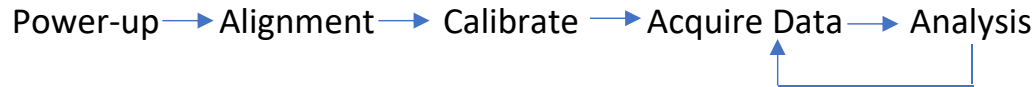


Spectroscopic Ellipsometry

System Operation



System Power Up

1. Turn on the main ellipsometer controller (VB-250)
2. Turn on the three buttons on the HS-190 unit
 - a. Order: monochromator, lamp power, lamp ignition
3. Open the WVASE32 program
4. Select the Hardware window
5. Initialize the system: **Hardware widow -> Initialize**

Sample Alignment

This procedure applies for both the calibration sample and specimen for analysis

1. Turn on the orange vacuum pump
2. Mount sample by switching the vacuum valve at base of system to *vacuum* and putting sample over the two tiny holes on the vertical stage
3. Select **Hardware window -> Acquire Data | Align Sample**
4. Insert the alignment detector (be gentle with the fragile pins), press OK to proceed
5. Adjust the stage tilt to center the cross-hairs, then press <Esc>
6. Maximize intensity by adjusting the micrometer. This step accounts for changes in substrate thickness
7. Press <Esc> to return to the Hardware Window
8. Remove the alignment detector

Calibration

1. Calibrate the system by first aligning the Si calibration wafer (see previous procedure).
2. Select **Hardware window -> Acquire Data | Calibrate System**
3. In the Calibration Routine window, select "Fine" in the Calibration Mode box. Leave all other default settings.
4. Click Ok and wait ~4 mins as calibration routine proceeds

Acquire Data

1. Select **Hardware window -> Acquire Data | Spectroscopic Scan**
2. Select the wavelength range and angle of incidence
 - a. Typical values for thin dielectric film on Si: 300nm to 1000nm at 70 degrees

Spectroscopic Ellipsometry

Analysis - This is the hard part...talk with CHANL staff about this process

Shutting Down

1. Turn off all parts of the HS-190, in the following order: Monochromator, Lamp Ignition, Lamp Power
2. Turn off the VB-250 Main Power unit