Spectroscopic Ellipsometry

System Operation

Power-up → Alignment → Calibrate → Acquire Data → Analysis → Analysis

System Power Up

1. Turn on the main ellipsometer controller (VB-250)
2. Turn on the monochrometer (HS-190)
3. Turn on the lamp power (HS-190) and ignite the lamp (lamp button)
4. Open the WVASE32 program
5. Select the Hardware window: Window | Hardware
6. Initialize the hardware: Window | Hardware | 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. In the Hardware window, select 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. Remove the alignment detector
7. Maximize intensity by adjusting the micrometer. The step accounts for changes in substrate thickness
8. Press <Esc> to return to the Hardware Window

Calibration

1. Calibrate the system by first aligning the Si calibration wafer (see previous procedure).
2. In the hardware window, select Calibrate System
3. In the Calibration Routine window, select “Fine” and the Calibration Mode box. Leave all other default settings.
4. Click Ok and wait ~4 mins as calibration routine proceeds.

Acquire Data

1. Select Spectroscopic Scan in the Hardware Window
2. Select the wavelength range and angle of incidence
   a. Typical values for thin dielectric film on Si: 300nm to 1000nm at 70 degrees
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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: Monochrometer, Lamp Ignition, Lamp Power
2. Turn off the Main Power unit