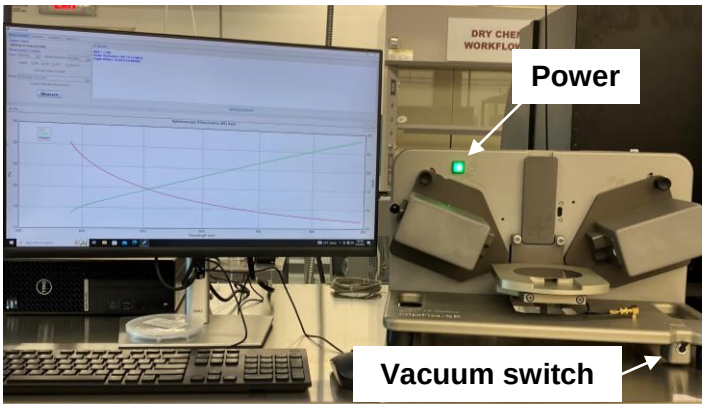
Woollam alpha-SE Spectroscopic Ellipsometer

An ellipsometer measures a change in the polarization state of light, an amplitude ratio (ψ) and the phase difference (Δ), as a result of interaction with materials. By fitting ψ and Δ to existing models, material properties such as optical constants (n, k), the thickness of thin films, and other material parameters can be determined.

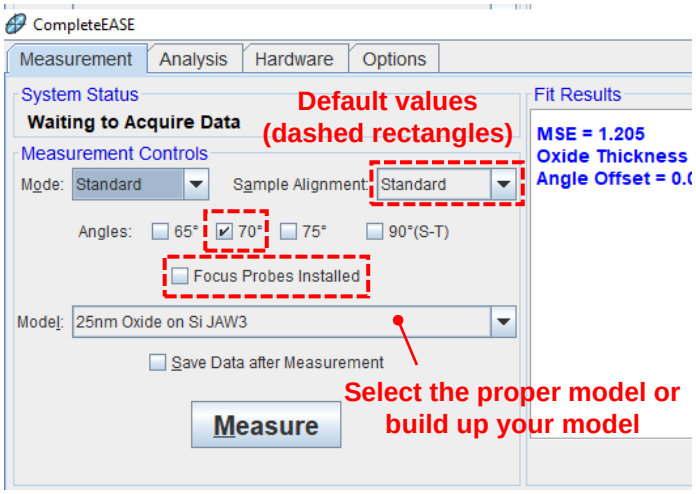
Features



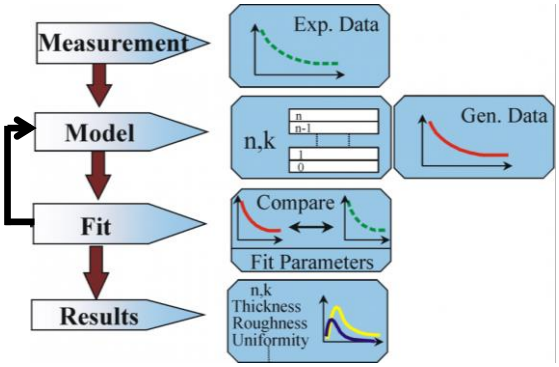
1. Auto sample alignment
2. Angles of incidence: 65, 70, 75°
3. Spectral range: 380 – 900 nm
   - 180 wavelengths
4. Fast data acquisition: 3 - 30 s
5. Beam diameter: ~ 3 mm
6. Sample size: 5 mm – 200 mm
7. Sample thickness: < 16 mm

Operating procedure

1. Turn on the ellipsometer
2. Start 'CompleteEASE' software
3. Place a sample on the stage
4. Switch on the vacuum pump & switch
5. Set the data acquisition parameters in the 'Measurement' tap as shown below
6. Click on the 'Measurement' button
7. Data and analysis results appear.
8. Shut down the system



Analysis flow



Measurement accuracy

SiO_2 thickness (nm)	Std. Dev., n=30 (nm)
2	±0.01
25	±0.01
60	±0.01
120	±0.006
500	±0.025
1000	±0.05