Compact, Affordable Spectroscopic Ellipsometer for Thin Film Measurement

December 2006

Flexible device from Ocean Optics quickly delivers multiple complex measurements

Dunedin, Florida (December 15, 2006) – Ocean Optics’ Mikropack office has introduced a compact, easy-to-use, benchtop spectroscopic ellipsometer for thin film measurement. The SpecEL-2000-VIS is ideal for semi-transparent flat samples such as wafers and glass plates. It provides fast, precise measurement of layer thickness, refractive index, absorption and components ratio at the touch of a button.

Half the price of standard spectroscopic ellipsometry equipment, the all-in-one system has a footprint of only 52 x 33 x 24 cm and features an integrated light source, spectrometer and two polarizers. It comes with a 32-bit Windows PC featuring easy-to-use software and measures polarized light reflected from the surface of the substrate to determine the thickness and the refractive index of the material as a function of wavelength.

Depending on the layer and substrate material, the SpecEl can detect layer thickness between 1 nm and 5 µm, and refractive indices over the full 450-900 nm spectral range. Analysis is carried out at the touch of a button within seconds of placing a sample on the wafer-chuck.

The software enables experiment methods to be configured and saved for one-step analysis. The powerful analysis software provides a range of modeling possibilities such as Cauchy, OJL, Tauc-Lorentz, Drude, EMA and different types of oscillators.
Compared to reflectometry, spectroscopic ellipsometry measures relative changes in the phase and amplitude of the light instead of absolute intensity. Ellipsometry’s independence from any reference measurement allows multiple parameters to be determined simultaneously.

###