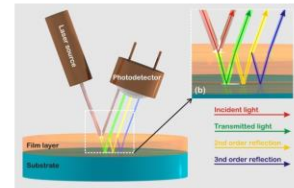
θmetrisis Film Metrology Specialists

ThetaMetrisis APPLICATION NOTE #009

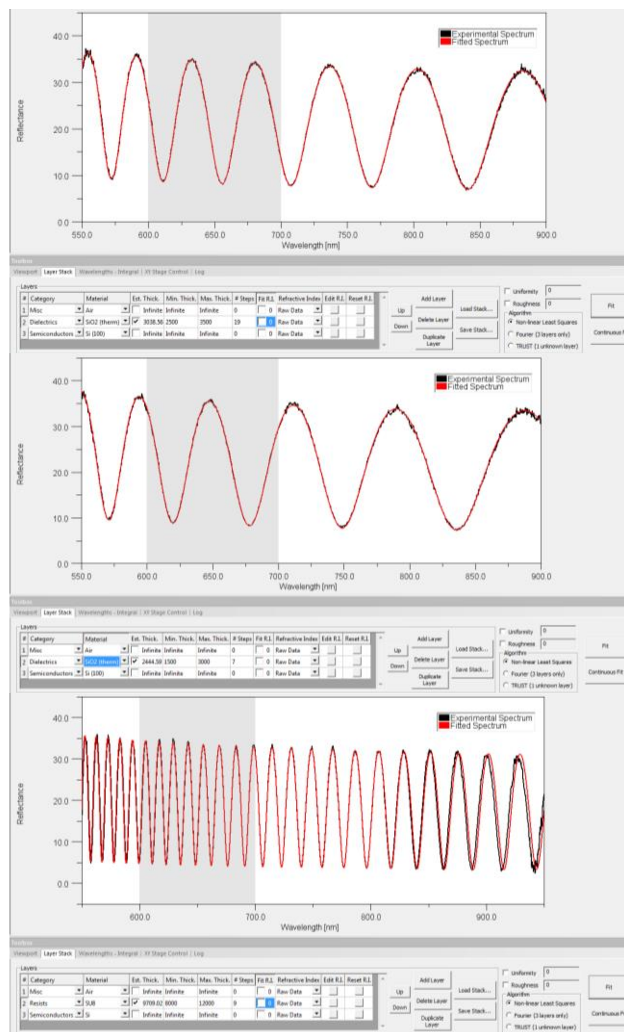
Refractive Index measurement

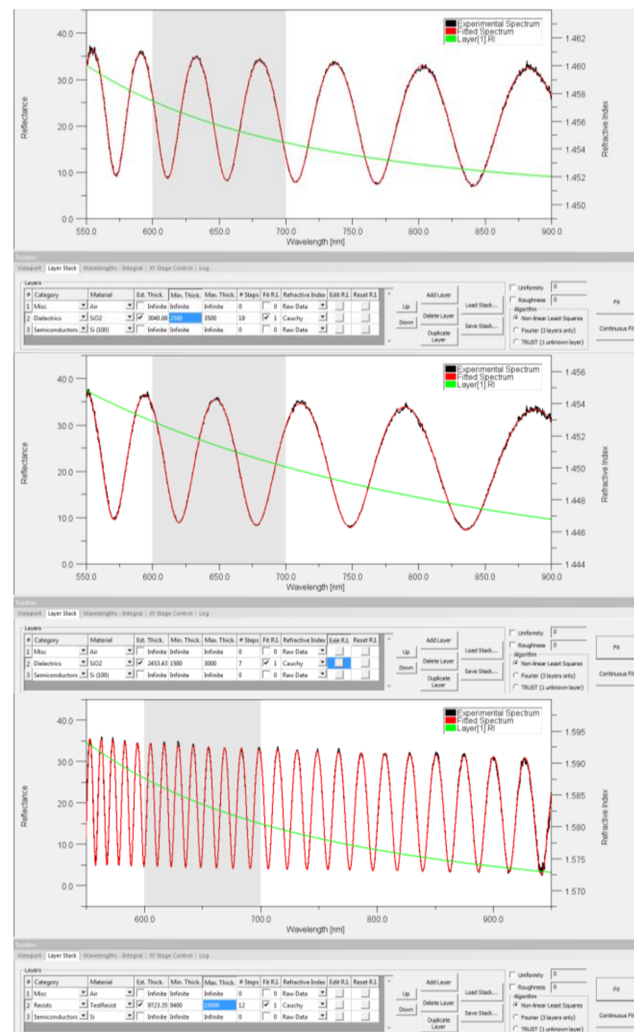


Goal: Measurement of refractive index of films along with film thickness.

Means & Methods: All measurements were performed with an FR-Basic tuned to operate in the 530-980nm spectral range. Reference spectrum was corrected either with calibrated Al sample, or standard Si wafer. The samples employed in the study were SiO_2 layers and thick SU-8 layers on Si wafer. FR-Monitor with Cauchy and Lorenz models was used for the calculation of the refractive index.

Results: In the following figures, the experimental and fitted spectra for SiO_2 of few microns thickness and ~10μm of SU-8 on Si substrate are illustrated. In the left column the film thickness is measured with the refractive index values from the database and in the right column the thickness and the refractive index are calculated simultaneously. In all examined cases the Cauchy and Lorenz parameter values that are calculated, represent refractive index (both real and imaginary parts)values very close to the database ones.





Conclusions: FR-Monitor can successfully employed for the measurement of refractive index of both transparent and semi-absorbing materials along with the film thickness(es).

For further information please contact us at info@thetametrisis.com or sales@thetametrisis.com

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