MProbe In-situ Thin film measurement

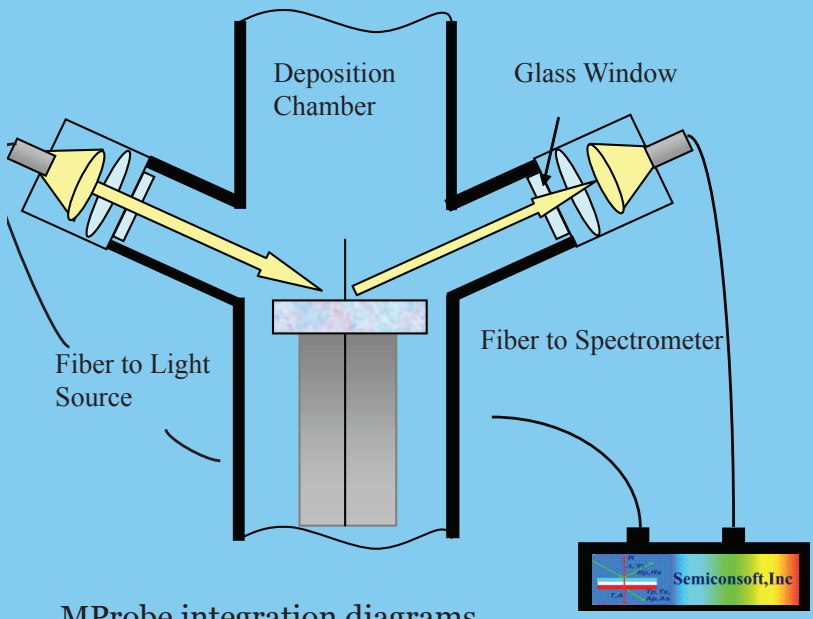
It is easy to be an expert with MProbe

Semiconsoft,Inc
Measurement Solutions

Any translucent films can be measured quickly and reliably: Optical coatings, Oxides, Nitrides, Photoresists, Polymers, Semiconductors (Si, aSi, polySi), Compound Semiconductors (AlGaAs, InGaAs, CdTe,CIGS),Hard coatings (SiC, DLC), metal oxides, thin metal films and many more.

Thickness Range: 1 nm - 500μm

Wavelength Range: 200nm -1700nm



MProbe integration diagrams (typical configurations)

Flexible integration: inside or outside the deposition chamber.

Outside: Optical heads are placed outside the windows and light is focused on the sample.Optical system is customized to fit the chamber design.

Inside: Reflectance probe is welded with vacuum flange (feedthru) and placed above the sample.

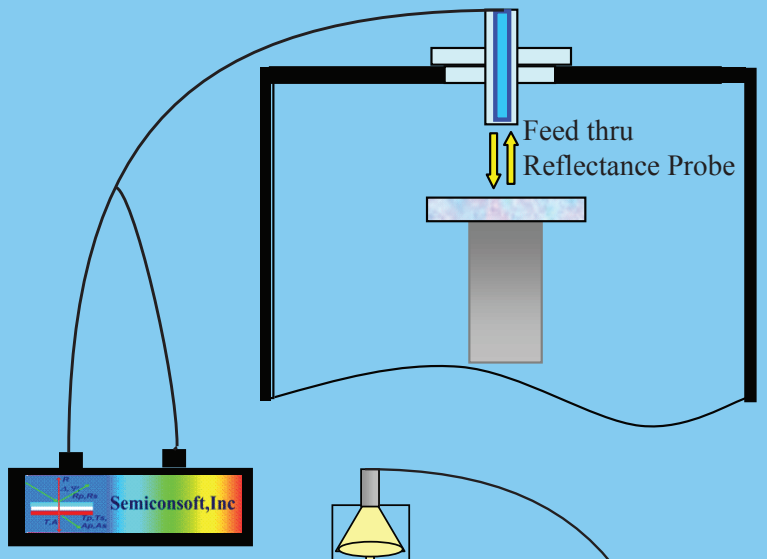
Real time measurement and analysis. No moving parts, parallel (CCD or PDA) data acquisition, fast measurement and trend-chart data display.

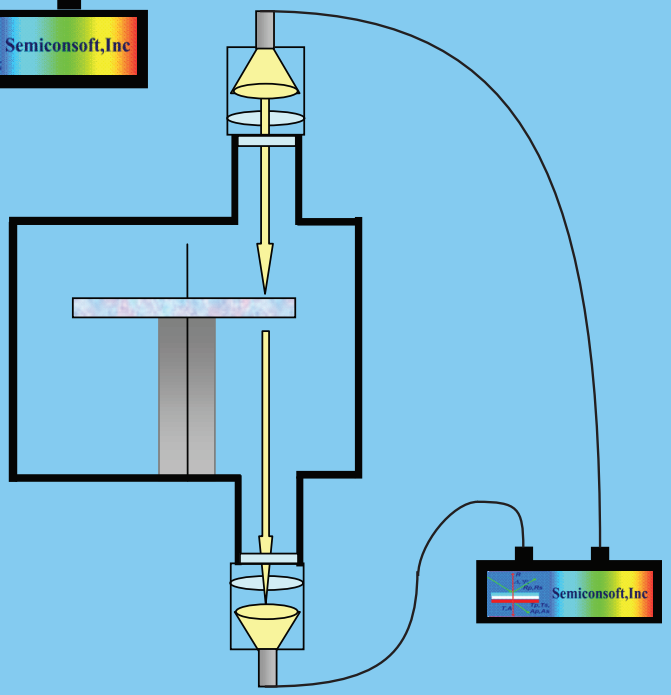
Extensive materials library (500+ materials) - new materials easily added. Support of parameterized materials: Cauchy, Tauc-Lorentz, Cody-Lorentz, EMA and many more....

Control software integration: Easy integration with external system using TCP Modbus or OPC automation interface. Programmable hardware triggers (5V TTL).

Measured parameters: thickness, optical constants, surface roughness. Additional: Color coordinates (CIE), bandgap, free carriers/conductivity

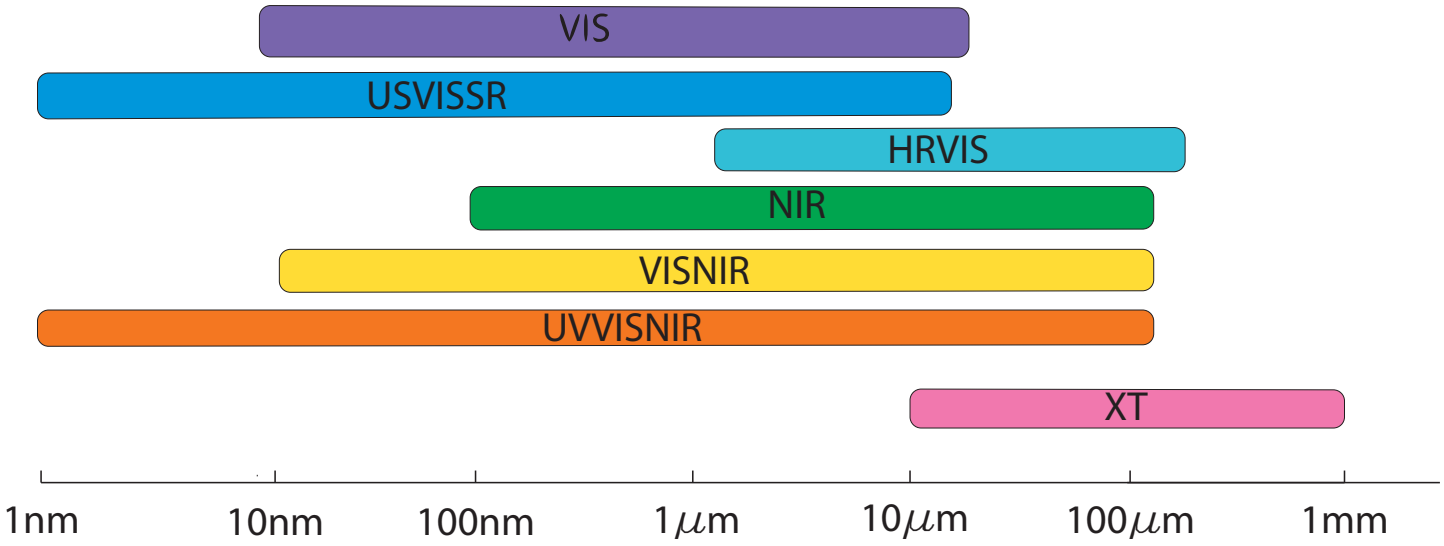
User friendly and powerful: Easy measurement and analysis set-up. Background and scaling correction, linked layers and materials. Offline data analysis: simulation & sensitivity analysis, multi-sample measurements, production batch processing.





Precision	0.01nm or 0.01%
Accuracy	0.2% or 1 nm
Stability	0.02nm or 0.03%
Spot Size	3 mm typical (depends on configuration)
Sample Size	from 4 mm
Measurement	< 1 s (20ms to 200ms typical)

In-Situ System models



Model	Wavelength range	Spectrometer/Detector/Light source	Thickness range*
VIS	400-1100 nm	Spectrometer F4/Si 3600 pixels/ Tungsten - Halogen light source	15 nm to 20 μm (option:up to 50 μm)
UVVisF	200-900 nm	Spectrometer F4/ Si CCD 3600 pix-els/ Flash Xe light source	1 nm to 20 μm (option:up to 50 μm)
HRVIS	700-1000 nm	HR Spectrometer F4/Si 3600 pix-els/ Tungsten - Halogen light source	1 μm to 400 μm
NIR	900-1700nm	Transmission Spectrometer (TVG) F2/512 InGaAs/Tungsten-Halogen light source	100 nm-200 μm
VISNIR	400-1700 nm	Spectrometer F4 Si CCD 3600 pixels(Vis channel);Transmission Spectrometer (TVG)F2/512 InGaAs PDA(NIR channel) Tungsten-Halogen light source	15 nm to 200 μm
UVVIS-NIR	200 -1700 nm	Spectrometer F4 Si CCD 3600 pixels(Vis channel);Transmission (TVG) F2/512 InGaA (NIR channel) Deuterium & Tungsten-Halogen light source	1 nm -200 μm
XT	1590nm -1650nm	Transmission Spectrometer (TVG) F2/512 InGaAs/Tungsten-Halogen light source	10 μm- 1 mm

* T, n & k measurement in 40nm - 5μm thickness range
Other configuration are available. OEM inquiries and custom development projects are welcome.
One year limited warranty on labor and materials for all system.

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