Semiconsoft,Inc
Measurement Solutions

MProbe® 20 Thin Film Measurement Systems

It is easy to be an expert with MProbe

Majority of translucent or lightly absorbing films can be measured quickly and reliably:Oxides,Nitrides, Photoresists, Polymers, Semiconductors (Si, aSi, polySi), Compound Semiconductors (AlGaAs, InGaAs, CdTe,CIGS),Hard coatings (SiC, DLC), Polymer films and coatings (Paralene, PMMA, Polyamides), thin metal films and many more.

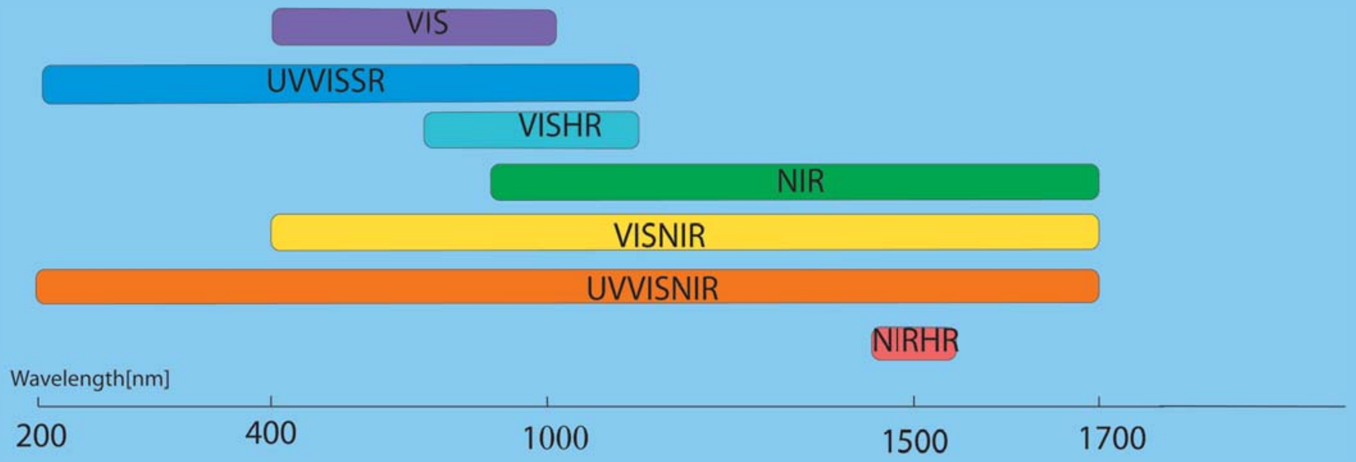
Thickness Range: 1 nm - 1.8 mm
Wavelength Range: 200nm -1700nm
Spot size: 0.5 mm

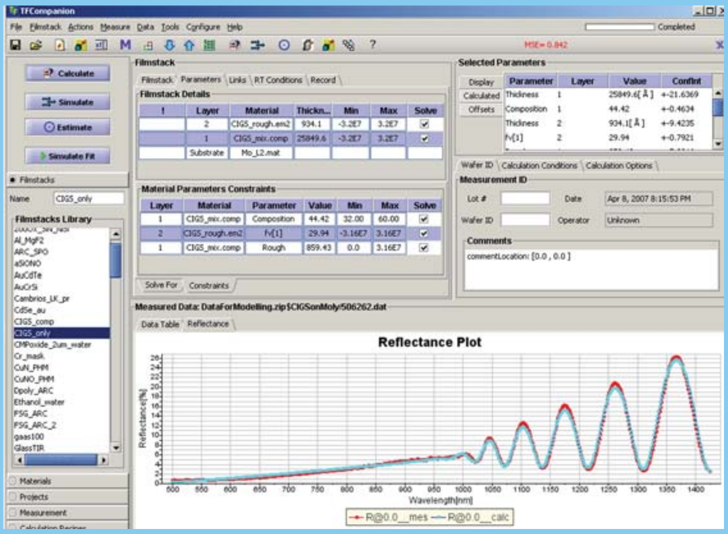
MProbe Advantage:

- Extensive materials library (500+), parametrized materials support
- Real-time, one-click measurement and analysis
- thickness, n&k and roughness measurement
- user friendly desktop sofware, no expert knowledge required -everybody is an expert
- powerful software tools: simulation,background/ scaling correction,multisample measurement,dynamic measurement
- Measurement history: recall/display measurement results and statistics
- free support and software update for 12 months

Thin Solar Cells applications: aSi, TCO, CIGS, CdS, CdTe - full solar stack measurement. LCD, FPD application: ITO, Cell Gaps, Polyamides. Optical Coatings: dielectric filters, hardness coating, anti-reflection coating Semiconductor and dielectics: Oxides, Nitrides, OLED stack

Precision	<0.01nm or 0.01%
Accuracy	<0.2% or 1 nm
Stability	<0.02nm or 0.03%
Spot Size	2 mm standard, 0.5 mm with lens
Sample Size	from 5 mm





Name: CIGS_only

Filmstacks Library
Al_MgF2
ARC_SPO
aSiONO
AuCdTe
AuCrSi
Cambrios_LK_pr
CdSe_au
CIGS_comp
CIGS_only
CMPoxide_2um_water
Cr_mask
CuN_PHM
CuNO_PHM
Dpoly_ARC
Ethanol_water
FSG_ARC
FSG_ARC_2
gaas100
GlassTIR

Filmstack Details

!	Layer	Material	Thickn...	Min	Max	Solve
	2	CIGS_rough.em2	934.1	-3.2E7	3.2E7	☑
	1	CIGS_mix.comp	25849.6	-3.2E7	3.2E7	☑
	Substrate	Mo_L2.mat				

Material Parameters Constraints

Layer	Material	Parameter	Value	Min	Max	Solve
1	CIGS_mix.comp	Composition	44.42	32.00	60.00	☑
2	CIGS_rough.em2	fv[1]	29.94	-3.16E7	3.16E7	☑
1	CIGS_mix.comp	Rough	859.43	0.0	3.16E7	☑

Selected Parameters

Parameter	Layer	Value	Confint
Thickness	1	25849.6[Å]	+-21.6369
Composition	1	44.42	+-0.4634
Thickness	2	934.1[Å]	+-9.4235
fv[1]	2	29.94	+-0.7921

Measurement ID
Lot #:
Date: Apr 8, 2007 8:15:53 PM
Wafer ID:
Operator: Unknown

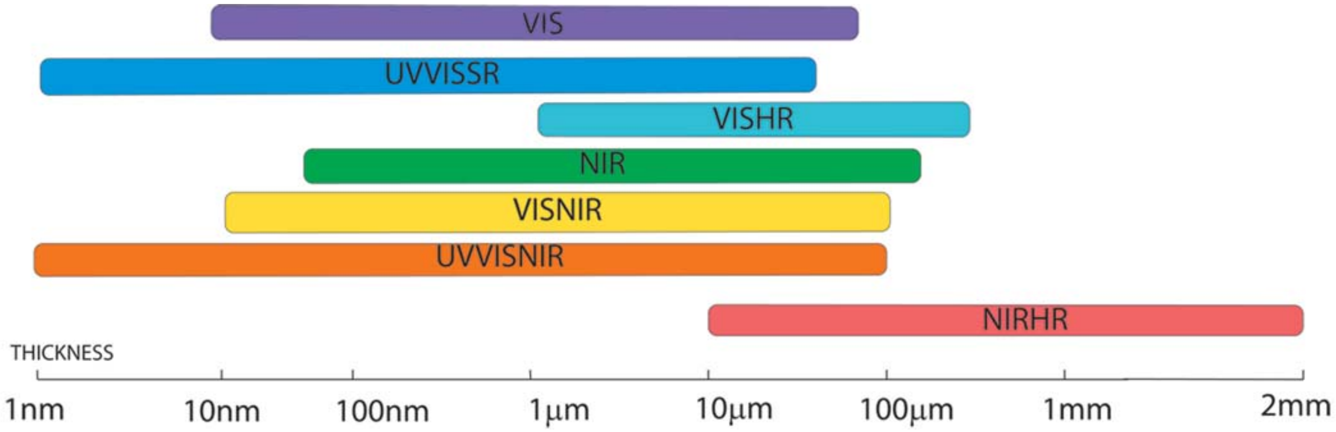
Comments
commentLocation: [0.0 , 0.0]

Measured Data: DataForModelling.zip$CIGSonMoly/506262.dat

CdS/CIGS stack results
it measured vs. generated data

MProbe system (desktop configuration)

Standard Configurations/Basic Specification



MPROBE 20 line includes different configuration of desktop system. Main standard configurations are described below. See individual system brochure for detailed info

Model	Wavelength range	Spectrometer/Detector/Light source	Thickness range*
VIS	400-1100 nm	Spectrometer F4/Si 3600 pixels/ Tungsten - Halogen light source	10 nm to 75 µm
UVVisSR	200-1000 nm	Spectrometer F4/ Si CCD 2048 pixels/ Deuterium & Tungsten-Halogen light source	1 nm to 75 µm (option:up to 150 µm)
VISHR	700-1100 nm	HR Spectrometer F4/Si 2048 pixels/ Tungsten - Halogen light source	1 µm to 400 µm
NIR	900-1700nm	NIR F4/512 InGaAs PDA/Tungsten-Halogen light source	50 nm-100 µm
VISNIR	400-1700 nm	Spectrometer F4 Si CCD 3600 pixels(Vis channel);NIR F4/512 InGaAs PDA(NIR channel) Tungsten-Halogen light source	10 nm to 100 µm
UVVIS-NIR	200 -1700 nm	Spectrometer F4 Si CCD 2048 pixels(UVVis channel);NIR F4/512 InGaAs PDA(NIR channel) Deuterium & Tungsten-Halogen light source	1 nm -100 µm
VisLX	400-1100 nm	F4/Si 2048 pixels, Tungsten Halogen light source. High frequency measurement version of MProbe Vis system (LAN interface, 10µs integration time)	10 nm- 70 µm
NIRHR	1500-1550 nm	NIR F4/512 InGaAs PDA/Tungsten-Halogen light source or SLD (super-luminescent diode)	10 µm-1800 µm(quartz) 4 µm -500 µm(Si)

* T, n & k measurement in 25nm - 20µm thickness range.
Maximum thickness limits are listed for R.I.= 1.5
Other configuration are available. OEM inquiries and custom development projects are welcome.
One year limited warranty on labor and materials for all system

Semiconsoft, Inc, 2018
tel. +1.617.388.6832 email: info@semiconsoft.com fax.+1.508.858.5473
Visit us : http://www.semconsoft.com