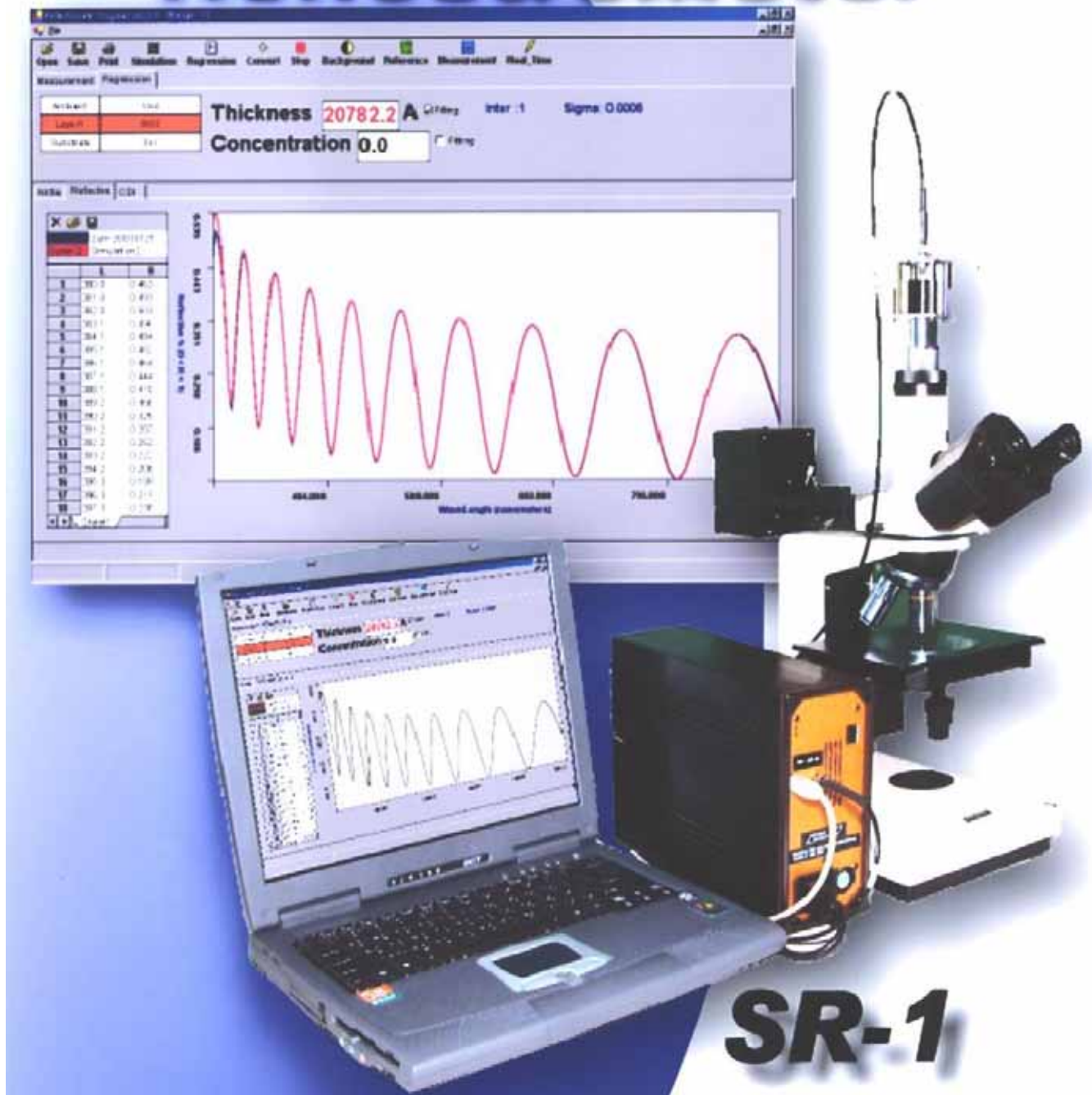




RADITECH

 SPECTROSCOPIC REFLECTOMETER



- ✚ SR-1 is the latest addition to the proven Raditech Spectroscopic Reflectometer family.
- ✚ SR-1 is easy to use, high performance and modular system.
- ✚ SR-1 可同時精確量測多層膜之膜厚及折射率 (N, K, T)

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Specifications are subject to change without any prior notice

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STANDARD SR-1 FEATURES

System performances

Spectral range: 380 - 900 nm

(Std) Angle of incidence :

Normal

Measuring time: 000.1 sec.

~1mn.(Programmable). Repeatability: -0.5% at
632.8 nm for R%

Accuracy: 9A on 1200Å thermo oxide on silicon traceable from NIST
standard. N = ± 0.01 at 632.8 nm.

↪ An Optical measurement station for thin film metrology

- Spectroscopic Reflectometer.
- Reflectivity measurement at any a 0° degree.

↪ With unique capabilities

- Single measurement station for a wide variety of analysis techniques
- Sample remains stationary during all measurements
- All measurements can be made as a function of wavelength,

TECHNICAL SPECIFICATIONS

↪ Metallurgical Microscope

- Objective: 40X, 10X, 4X
- Eyepiece: 10X
- Color filter wheel are included, five color filters
- Real time dual exists: One for digital camera, one for signal
- Manual focus reticle are included
- 21mm Reticle Dashed cross type:
 - 10 μm width
 - Angular Accuracy: ±1 arc sec.
 - Line Thickness: 25 μm ± 13μm
 - Centering: 0.25mm
 - Surface Accuracy: 3-4λ



Source module

- QTH Lamp 50W.
- Collimation optics.
- Mounted in an Air cooled module.
- Spectral range 360 nm to 2000 nm.
- Delivered with stabilized power supply.



Electronic eyepiece digital camera

- Coupled with X5 magnitude eyepiece lens
- 350,000 pixel
- Auto exposure time control
- Color digital camera



UV-Visible Spectrometer

Grating monochromator, designed to accept PDA (Photo diode Array) –Optical fiber at the entrance :

- Standard Spectral range:380nm~900nm.
- Resolution:0.8nm at 546nm.
- Wavelength accuracy:+-1.2nm at 546nm.
- *Stray light<0.01% at 10 nm from the excitation radiation.*
- The spectrometer can be used with its optical fibers for emission.
- F / # = 2.0
- Sensitivity : 21,000 A/D Counts @425 nm, 4ms, 500um Fiber with 25um SLIT
- Hermetical sealed
- Wavelength stability : < 0.05 nm over 48HRS



PDA detector

- Spectral range: 330nm – 950 nm.
- Low dark current: Equivalent to 2000 c/sec background noise.
- Dynamic Range: 14 bit.



Sample holder

- Manual adjustment on 2 axis (for easy tilt and focus adjustment)
- Sample dimensions: up to Ø150mm, max thickness of 10 mm.



Controller

- PC Pentium®III type computer :
- Speed \geq 800 MHz,
- SDRAM : 256 MB, HDD > 20 Go,
- Floppy : 3.5", CD/DVD
- Screen : 17" TFT-LCD Display,



Acquisition & Calibration Software

- Easy to use Windows™ XP based interface
- Calibration
- Full experimental conditions setting,
- Data handling,
- Real time display of the measurement steps,
- Full documentation provided.



Modeling and Analysis Software

Software working under Windows™ XP, tutorial and reference (n, k) database. As a result of 2 years of development, this data processing software dedicated to ellipsometry and photometry is fully compatible with data from SOPRA GES5 series. It allows the simulation of measurements, the regression on measurements and includes databases (materials indices, dispersion laws...) as well as a bibliography ElliBib (over 600 references). Features :

- **Simulation of complex samples**
 - 2 materials mixture
 - Simulation of optical dispersion laws (over 5 mathematical models)
 - Interface roughness modeling
- **Photometric simulation**
 - Simulation as a function of 2 parameters (2D graphics)
 - Correlation between various parameters
- **Regression and extraction of physical parameters**
 - Levenberg -Marquardt regression algorithms
 - Regression on R%
 - Regression on (n, k) and derived files. Extraction of the physical parameters from the optical properties of the materials (optical transitions)
- **Other characteristics**
 - The largest (n, k) data base available to date
 - All models of refractive indices : EMA, polynomial oscillators, etc.
 - Database on Ellipsometry references

Optical Layout

