

SENDIRA



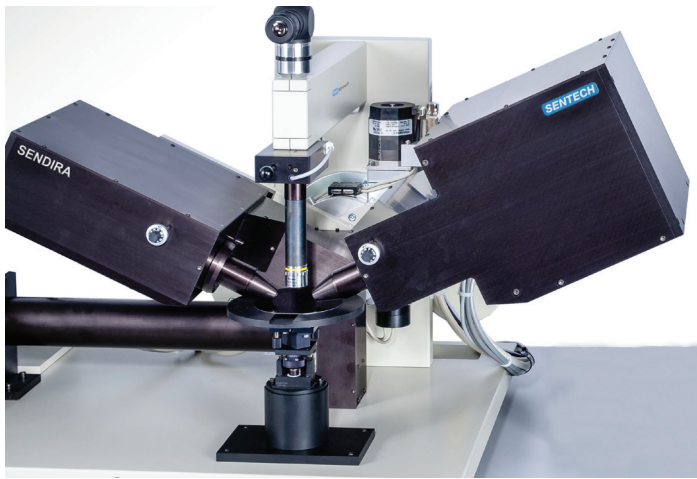
Infrared Spectroscopic Ellipsometer System

Ellipsometric vibrational
spectroscopy

Fully applicable FTIR

SENTECH

Erfolg
durch Leistung



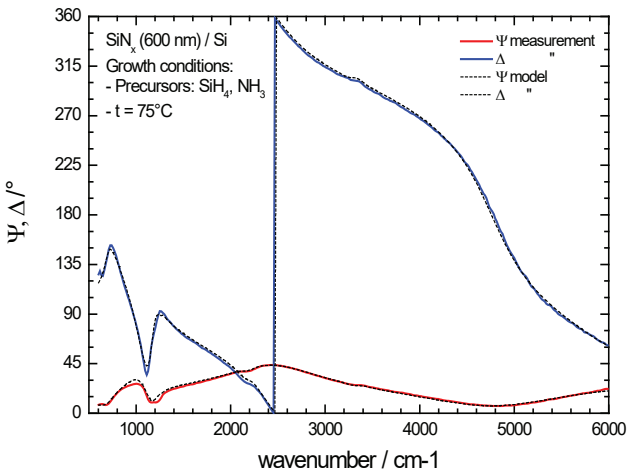
Compact table top instrument **SENDIRA** for the infrared

Product description

The **SENDIRA** is an ideal tool to measure epitaxial layer systems in compound semiconductors with absolute precision. It measures thin film thickness, refractive index, extinction coefficient, and related properties of bulk materials, single layers, and multilayer stacks. Especially layers below covering layers that are non-transparent in the visible range are now accessible for measurement. Composition of materials and orientation of larger molecule groups and chains can be analyzed.

The SENTECH ellipsometer **SENDIRA** is especially designed for the infrared. The compact table top instrument comprises the purged ellipsometer optics, computer controlled goniometer, horizontal sample platform, auto-collimating telescope, commercial FTIR, and DTGS or MCT detector. The FTIR provides excellent precision and high resolution in the spectral range from 400 cm^{-1} to 6000 cm^{-1} ($1.7\text{ }\mu\text{m}$ – $25\text{ }\mu\text{m}$).

The **SENDIRA** is focused on the vibrational spectroscopic analysis of thin layers. Applications range from dielectric film, TCOs, and semiconductors to organic layers. The **SENDIRA** is operated by **SpectraRay/4** software. FTIR software is provided additionally.



Measured and fitted ellipsometric spectra of an SiN_x film on Si

SENDIRA Infrared Ellipsometer System

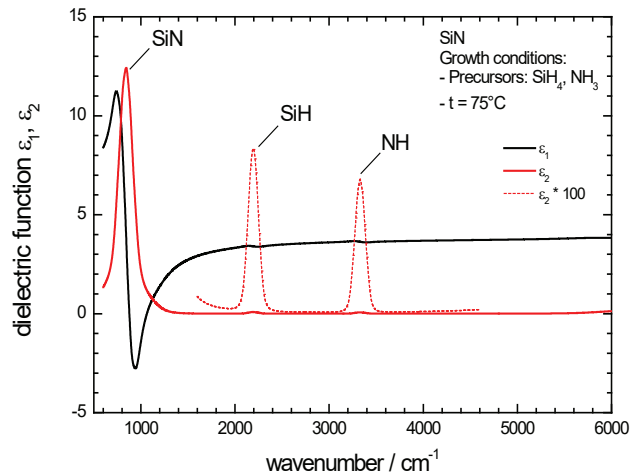
- Horizontal sample stage
- Motorized variable angle of incidence
- Sample mapping capability
- Purged IR optics for low water vapor concentration
- SpectraRay/4 comprehensive ellipsometer software

Specifications

Spectral range nominal MIR:	400 cm^{-1} - 6000 cm^{-1}
Angle of incidence:	Computer controlled goniometer (resolution $<0.005^\circ$)
Repeatability:	in Ψ : $<0.05^\circ$ in Δ : $<0.1^\circ$
Sample substrate thickness:	0 - 10 mm, others on request

Options

- Mapping stage r, theta, 150 mm sample platform
- 50 mm x-y mapping option, 150 mm sample platform
- Linearized MCT detectors, Liquid N2 cooled, $10,000 - 700\text{ cm}^{-1}$
- Auto height and tilt adjustment of sample



Measured dielectric functions ϵ_1 and ϵ_2 of the ICPECVD SiN_x film spectra of SiN_x on Si

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