

# NEXT-GENERATION SPECTROSCOPIC ELLIPSOMETER FOR 4-8" FAB NEEDS

HIGH  
THROUGHPUT &  
ACCURACY  
SUPERIOR  
SENSITIVITY  
SMALL  
FOOTPRINT



## APPLICATIONS



### Semiconductor Devices

Monitoring thin film properties: ultra-thin films, ONO, gate oxide, thick films, single or multiple layers



### LEDs & Optoelectronics

Characterization of thin films and optical coatings in light-emitting diodes (LEDs), lasers and optoelectronic devices (e.g., GaAs)



### High-power & High-frequency Electronics

Compound materials (e.g., GaN) where ellipsometry is employed to measure thickness in the stack and optical properties, thereby facilitating design and fabrication processes

[www.semilab.com](http://www.semilab.com)



# Film Sense<sup>TM</sup>

## Multi-Wavelength Ellipsometers

- Low Cost
- Fast and Precise
- Compact

*Ideal for single film thickness measurements,  
uniformity mapping, and in situ monitoring*

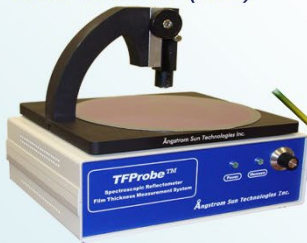




# ..... where you find affordable optical solutions and great support .....

# Ångstrom Sun Technologies Inc.

Film Thickness  
Test Station (SR)



Educational VASE



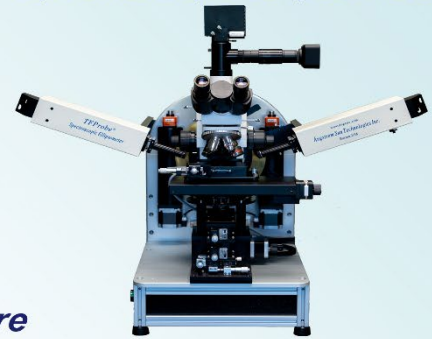
## TFProbe® Tools

Spectroscopic Reflectometer (SR)  
Spectroscopic Ellipsometer (SE)  
MicroSpectrophotometer (MSP)  
In-Line Metrology  
TFProbe Software  
Analytical Service

### Affordable

Easy to Use  
Fast Delivery  
Free Evaluation  
Lease to Buy Option  
Trade-In Upgrade Option  
Customizable & Integrable

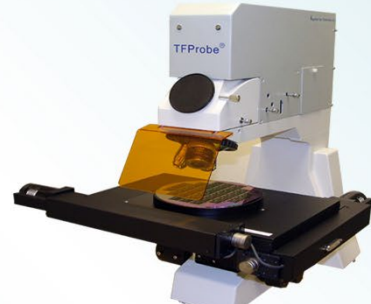
Automatic Variable Angle  
Spectroscopic Ellipsometer



### Advanced Software

Regression / Simulation  
User Friendly Interface  
Real -Time Monitoring  
Digital Imaging Tool  
Free NK Database  
2D/3D Graphics  
RS232 Protocol

Digital Imaging MSP  
Microspectrophotometer  
Advanced Microspot Film  
Thickness Measurement Tool



### Application

Film Thickness & Optical Constants  
Thickness Range: up to 200  $\mu\text{m}$   
Wavelength Range: DUV-UV-Vis-NIR-IR  
Reflection and Transmission Spectra  
Dielectrics, Polymers, Semiconductors  
Micron Region on Patterned Structures

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U.S.A.

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[www.angstec.com](http://www.angstec.com)



**Fraunhofer**  
IOSB

Fraunhofer Institute of Optronics, System  
Technologies and Image Exploitation

## RETROREFLEX ELLIPSOMETERS

### Laserscanner Systems

Features:

- Reflection or transmission arrangement
- Image based inspection of large areas of planar or nonplanar surfaces
- Huge depth of focus (up to 300 mm)
- Combined detection of defects ( $> 20 \mu\text{m}$ ), polarimetric anomalies and ellipsometric or polarimetric measurements

### Single Point Sensors

Features:

- Reflection or transmission arrangement
- Compact design
- Full Mueller matrix or Stokes vector measurements
- Fast measurements of Stokes vectors (up to 4  $\mu\text{s}$ )
- Measurements at curved surfaces for two- and three-phase systems
- Optional multiple wavelengths



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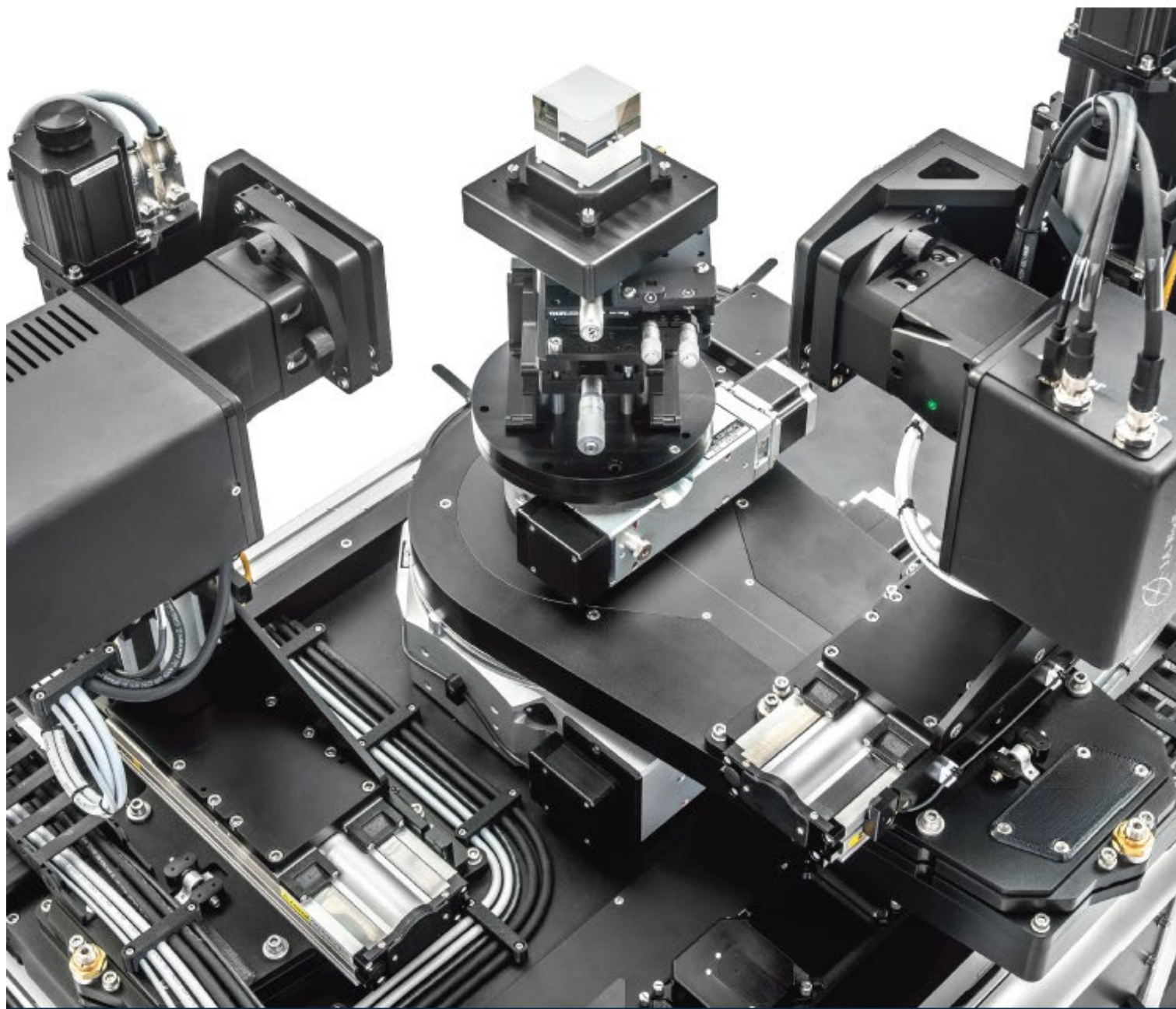
[matthias.hartrumpf@iosb.fraunhofer.de](mailto:matthias.hartrumpf@iosb.fraunhofer.de)

[www.iosb.fraunhofer.de/SPR](http://www.iosb.fraunhofer.de/SPR)

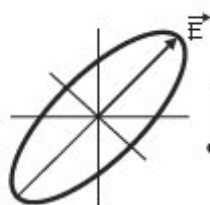


# Customized Instruments for Revolutionary Research

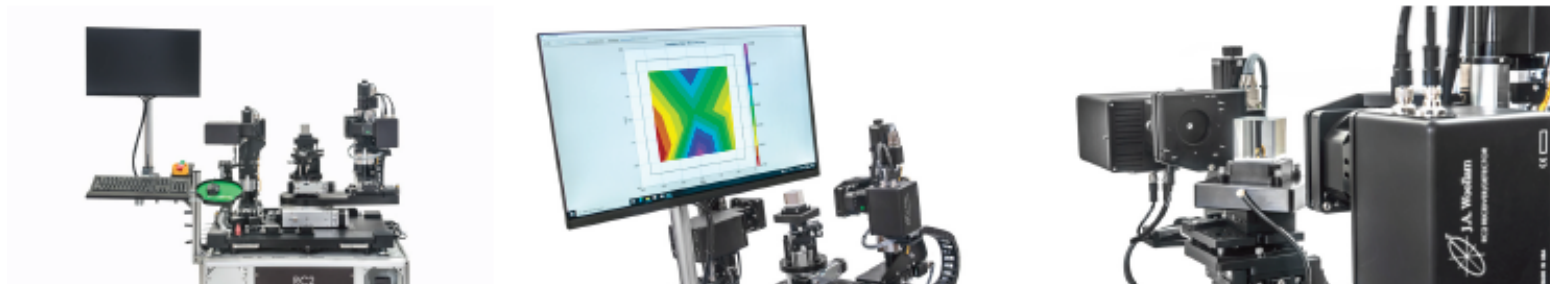
Explore your options when it comes to our industry-leading spectroscopic ellipsometers.



With numerous configurations, our ellipsometers can be tailored to meet your research goals. The RC2 pictured above was custom designed for measurements of complex beam splitters and prisms. It includes DUV to NIR wavelengths and custom translation of the detector to capture the beam as it deviates through the cube.



J.A. Woollam Co.

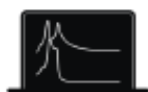


# WE INNOVATE, SO YOU CAN DISCOVER.



## INSTRUMENTS

Our core technology has continuously evolved over the last 30 years leading to hardware with world-class accuracy and reliability. We continue to refine our line of ellipsometers with the latest technological advancements.



## SOFTWARE

Our software includes a full data analysis suite that's intuitive and easy to use. We regularly update the software with features to improve the user experience while also developing technical solutions for new complex materials.



## ACCESSORIES

Ellipsometry experiments can be combined with sample stages to vary the relative pressure, temperature and liquid ambient within the sample environment. We have integrated a large variety of accessories to create the experimental conditions you need.



## OPTIONS

We offer the ability to customize our ellipsometers to match your budget and research requirements. Typical options include wavelength range, mapping area, and beam size. We'll help you determine which options are most relevant to your application.



## SUPPORT

Our commitment to customer support sets us apart. We offer a variety of learning opportunities each year all over the world, both online and on-site. We stand behind our products and ensure that you can get the most out of them.



## RESEARCH + DEVELOPMENT

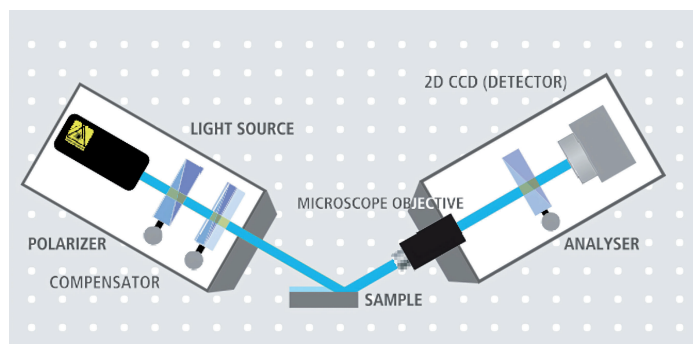
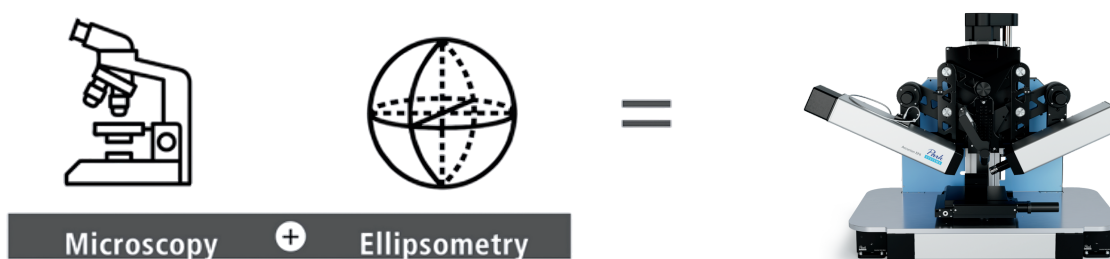
Our dedication to innovation has led to over 200 patents in the field of ellipsometry. We are committed to providing market-leading, state-of-the-art software and instrumentation.



# Accurion EP4

## Imaging Spectroscopic Ellipsometry for Microscopic Thin Film Metrology and Visualization

Accurion EP4 is the advanced imaging spectroscopic ellipsometer, combining ellipsometry and microscopy to measure thickness and refractive index on structures as small as 1  $\mu\text{m}$ . Capture all features in the field of view simultaneously — precise, efficient, and powerful.



### Key Features

- Highest lateral ellipsometric resolution for thickness and refractive index on microstructures as small as 1  $\mu\text{m}$ .
- Intuitive selection of measurement region by drawing regions in live ellipsometric view
- Continuous spectroscopic imaging ellipsometry from UV to NIR.
- Expanded application of ellipsometry to small structures with new features and accessories.

### Selected Applications

<p>Ellipsometric contrast micrographs of CVD graphene</p>	<p>Drying of a sessile droplet of a graphene dispersion</p>	<p>Characterization of Graphene devices</p>	<p>SCAN ME To learn more</p>	<p>Please contact us for your integration ideas!</p>	
<p>Characterization of complex layer stack of a pixel in parallel including common layer stack modelling</p>	<p>Optical properties of microscopic waveguides</p>	<p>Microscopic maps of oxide layer thickness</p>			<p>Overall focused Brewster angle microscopy with ultraobjective</p>



## UNLOCK THE POTENTIAL OF YOUR SPECTROSCOPIC ELLIPSOMETER

# Ai Diffract™

Bring 3D metrology capability to your spectroscopic ellipsometer with Ai Diffract software and its industry leading RCWA-based analysis of nanoscale structures

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