Compact ESCA System

SAGE

Features:
- Fully Computerized Surface Analysis
- Surface Quality Control
- Rapid Sample Analysis
- Multiple Point Analysis

Options:
- Automatic Depth Profiling
- Large Samples up to 12”
- Optical Sample Monitoring
- High Resolution/High Efficiency ESCA and Small Spot XPS with High Performance PHOIBOS Analyzer
The SAGE HR is a Compact ESCA System specially designed for high resolution spectroscopy. The system is equipped with the PHOIBOS analyzer for high resolution and high efficiency in electron spectroscopy. This combination is also designed for small spot XPS down to 100 µm.

- High efficiency and high resolution ESCA performance of the PHOIBOS analyzer
- Small spot XPS with spot diameter down to 100 µm

The compact ESCA system SAGE provides best quantitative information, the data interpretation is straight forward and the only manual operation is to insert the sample holder into the transfer system. The precision of the sample positioning is better than 100 µm and the whole surface can be analyzed.

**SAGE - The System Concept**

The standard SAGE 150 and new SAGE HR concepts set new standards for operation of completely automatic ESCA systems under industrial conditions. SAGE systems meet all requirements for an industrial application in context with surface related material properties for conducting and insulating samples.

**SYSTEM FEATURES**

- Easy to use for quality control
- Total automated routine analysis
- Automatic quantification
- Depth Profiling - depth dependent chemical state information through high speed ion etching
- Application software for non-destructive overlayer thickness analysis with sub nm precision
- Via internet full remote control and service
- True 180° hemispherical energy analyzer with high resolution and sensitivity
- Dual anode X-Ray source with Mg/Al anodes
- High pumping speed for samples like powders and organics
- Nondestructive analysis of very large samples like hard disks up to 5.25”
- Exact sample positioning and monitoring with an accuracy better than 100 µm
Software Concept

- Specslab system control, data acquisition and processing software
- STATUS menu to check the vacuum and transfer status
- SOURCE menu to handle X-ray and ion sources
- EDITOR menu to define the automation files
- AUTOMATION menu to measure with predefined source conditions and sample positions
- Several tools for service and maintenance
- System architecture allows integration into ISO standard procedures

Applications

- Determination of layer thickness for hard disc production
- Control of wafer surface composition between different processing steps
- Depth profiling of chemical concentration profiles with nm resolution
- Polymer surface composition checks during processing
- Adhesion problems on surfaces
- Surface state control of metallic, polymer or glass surfaces
- Surface composition of bioactive surfaces

For detailed application notes see: www.specs.de/products/ESCA/systems/sage-system
SAGE 150

ESCA Specification:
Sensitivity 200,000 cps at Ag 3d5/2, 300 W MgKα,
FWHM = 1.00 eV, 1 x 2 mm² acceptance area
Standard ESCA analyzer with 95 mm mean radius,
single channel detector

SAGE HR 100

ESCA Specification:
Sensitivity 600,000 cps at Ag 3d5/2, 300 W MgKα,
FWHM = 1.00 eV, 1 mm acceptance area
High performance PHOIBOS 100 5MCD analyzer

SAGE HR 150

ESCA Specification:
Sensitivity 1,200,000 cps at Ag 3d5/2, 300 W MgKα,
FWHM = 1.00 eV, 1 mm acceptance area
High performance PHOIBOS 150 9MCD analyzer

Options

- Small spot Ion Source for depth profiling
- Up to 12" wafers with high sample throughput
- Optical microscope for sample monitoring
- Flood Gun for surface charge compensation
- Fine focus Electron Gun for SEM/SAM
- UV source for UPS
- Preparation chamber for plasma based surface processing

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