

EA15

HEMISPHERICAL ENERGY ANALYSER



XPS | UPS | ARPES | AES | ISS

DESCRIPTION

PREVAC EA15 hemispherical energy analyser provides high-resolution PES measurements with a 150 mm mean radius analyser.

The analyser is wrapped in a shield constructed of up to two parallel mu-metal plates guaranteeing adequate analysis conditions for low-and high-energy photoelectrons.

Equipped with a total number of 11 slits, the analyser offers the possibility to choose between best energy resolution and best intensity. According to given photoelectron energy the analyser is set up with up to 8 predefined PE to satisfy customer's requirements.

DETECTORS

- **MCP-CCD detector**
 - 40 mm diameter dual MCP detector
 - 656 energy channels available simultaneously
 - 494 angular spatial channels available simultaneously
 - 90 fps
- **7-MCD detector**
- **DLD detector** (on request)

ANALYSER PACKAGE

The PREVAC analyser package includes:

- EA15 hemispherical energy analyser
- RUDI-EA2 high stable and low noise electronics
- SPECTRIUM acquisition and analyser control software with Windows OS computer system.

ADDITIONAL INFORMATION

EA15 hemispherical energy analyser can be controlled directly by LabVIEW programming environment.

TECHNICAL DATA

Mounting flange	DN 100 CF
Bakeout temperature	up to 150 °C
Working distance	43 mm
Analyser mean radius	150 mm
Pass energies	
XPS	20, 50, 100, 200 eV
XPS/UPS & XPS/UPS/ARPES	1, 2, 5, 10, 20, 50, 100, 200 eV
Energy resolution	
XPS	< 20 meV FWHM
XPS/UPS & XPS/UPS/ARPES	< 3 meV FWHM
Kinetic energy range	0.5 - 3000 eV
Acquisition modes	fixed, scan
Transmission and angular lens mode:	
▪ lens acceptance angle (transmission mode)	+/- 15°
▪ lens acceptance angle (angular mode)	+/- 10°
Maximum energy window in fixed mode	12.5 % of pass energy (for MCP-CCD)
Completely designed of non-magnetic materials	

SPECTRIUM SOFTWARE



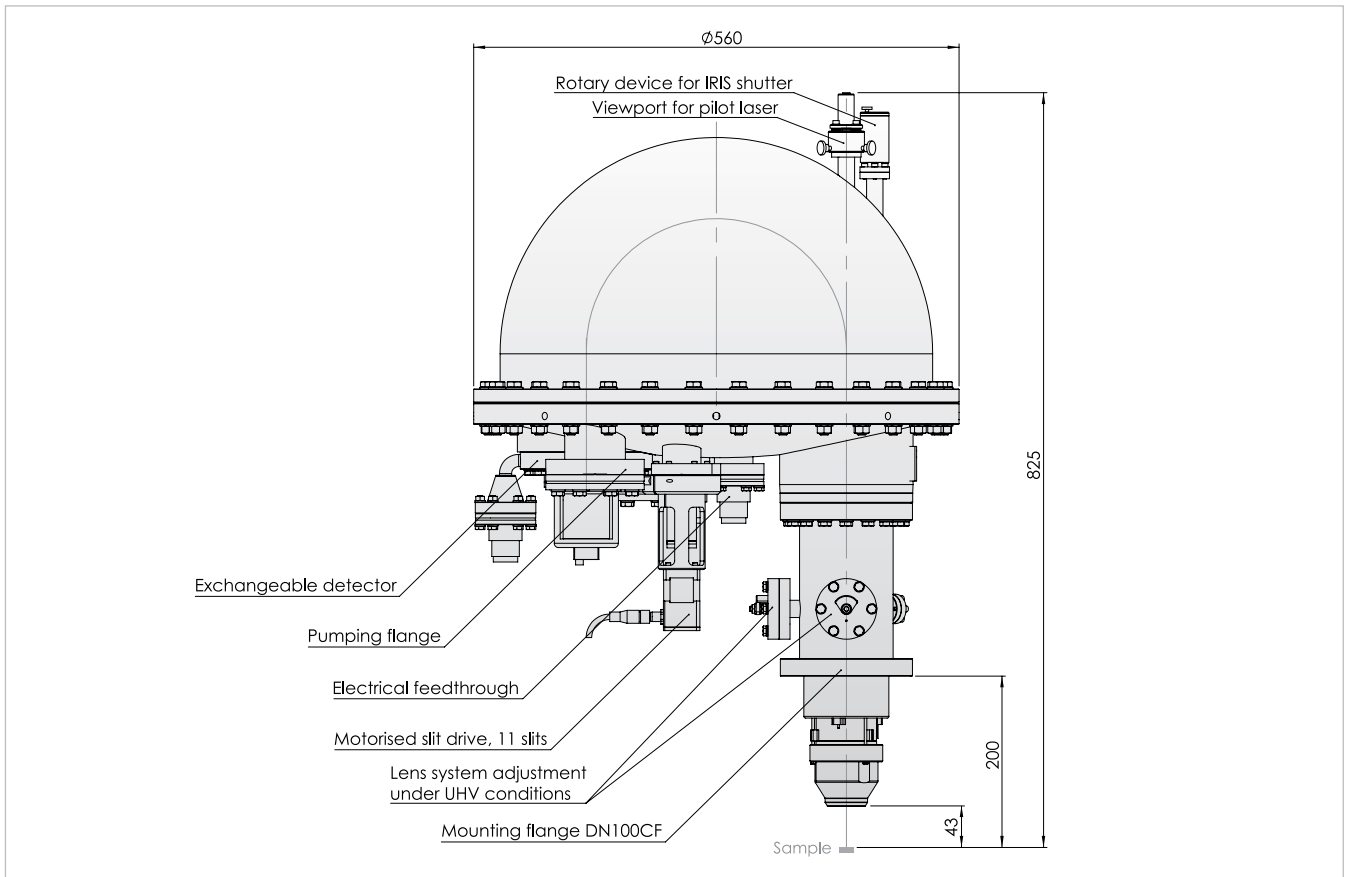
NOTE | The use of a mu-metal analysis vacuum chamber or an inner mu-metal shielded chamber in combination with PREVAC EA15 analyser is recommended in order to minimize influence of exter-



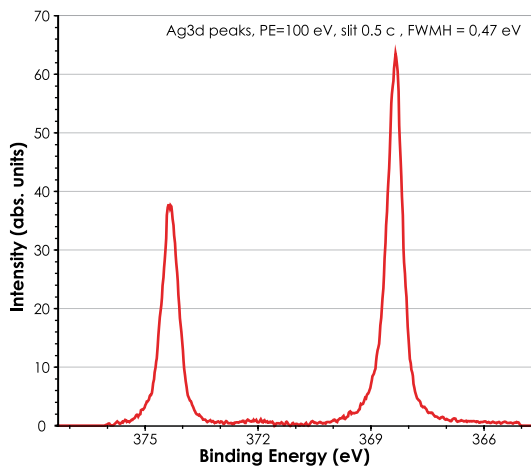
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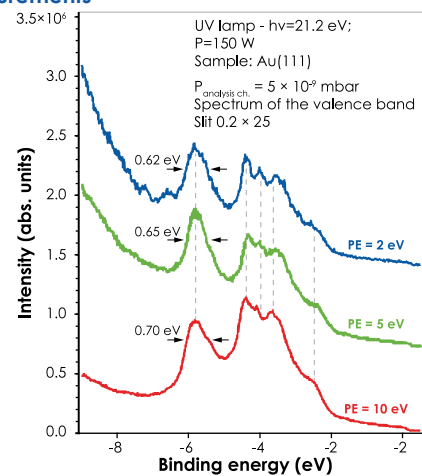


XPS measurements



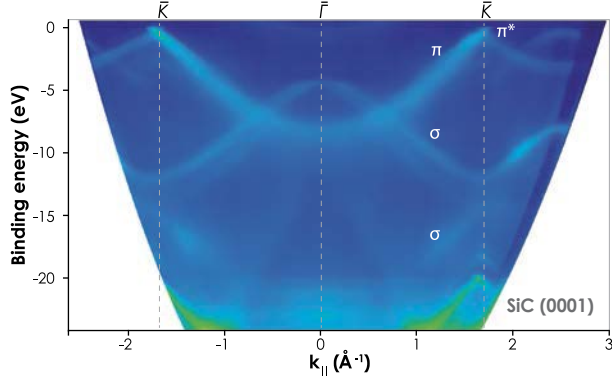
Spectra of silver, obtained by EA15 analyser and X-ray source with monochromator RMC50, excitation AlK α 1486,74 eV.

UPS measurements

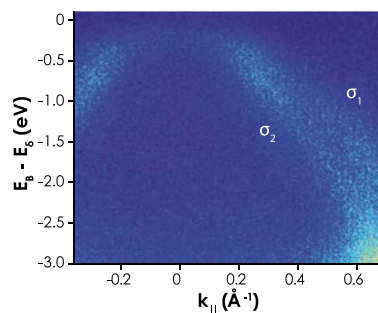


Valence state UPS spectra of Au(111) excited by a non-monochromatic UV lamp (radiation from He I line).

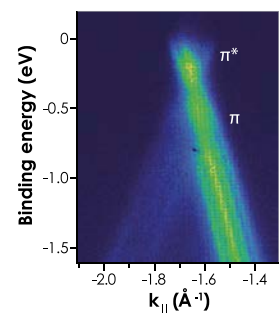
ARPES measurements



The electronic band structure along $\bar{K}\bar{F}$ direction for the $h\nu=40.8$ eV at room temperature.



Dispersion of the σ band around $\bar{\Gamma}$ point for $h\nu = 40.8$ eV.



Multilayer graphene with four π -band branches together at \bar{K} point.



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