

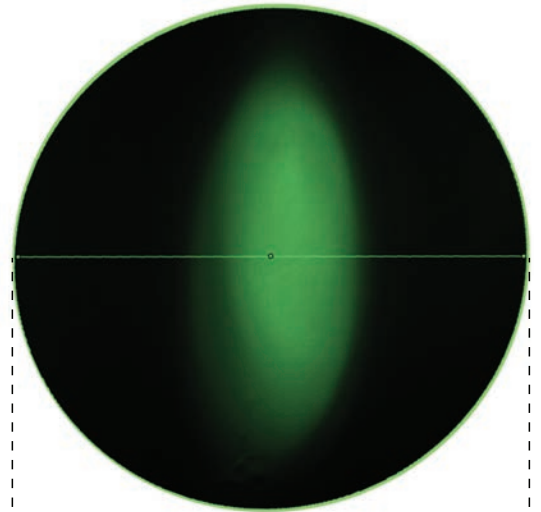
# FOCUS HIS 14 HD

## HIGH DENSITY VUV SOURCE

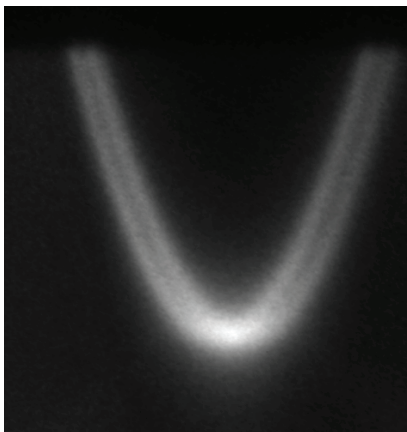
Ultimate UPS, ARPES, PEEM and  $\mu$ -ARPES



- 300  $\mu\text{m}$  spot size
- 50 x higher flux density (compared to non-focused source)
- Large working distance
- Ease of operation
- Discharge regulation
- Operating pressure down to  $10^{-10}$  mbar range



VUV spot imaged with PEEM (25° grazing incidence)



Au (111) surface state with Rashba Splitting  
HeI excitation (21.2 eV)  
Dwell time 50 s  
measured with PHOIBOS 100 (SPECS GmbH)

Courtesy:  
Dr. L. Dudy, M. Scholz,  
Universität Würzburg

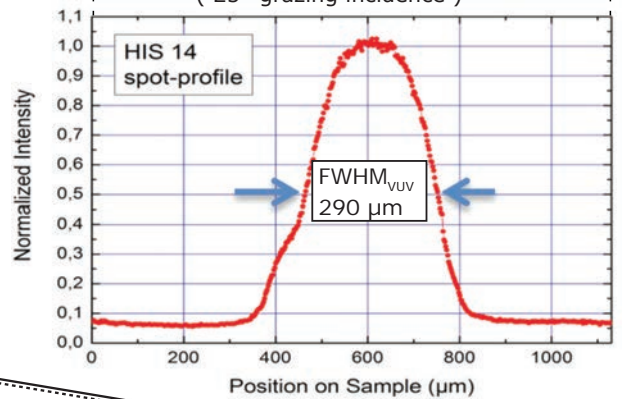
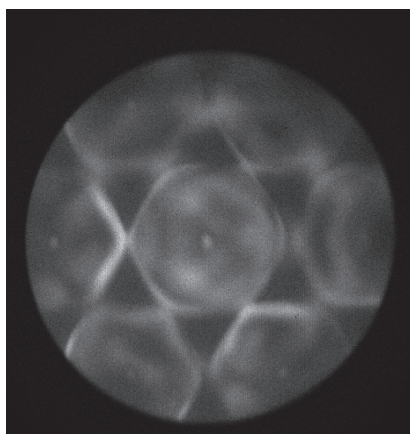


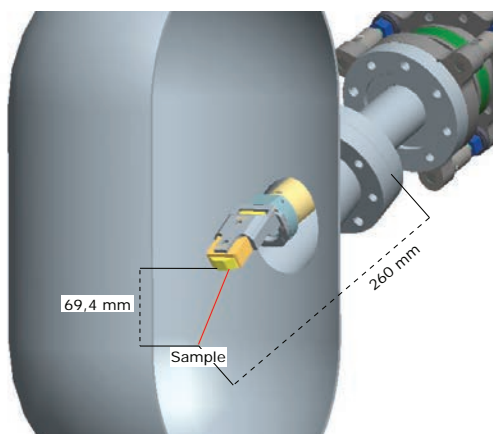
Photo current	> 20 nA (biased Al foil, standard capillary)
Useful gas discharge lines:	He I/II, NeI/II, ArI/II, KrI/II, XeI/II, H (Ly $\alpha$ , Ly $\beta$ )
Spot diameter:	< 300 $\mu$ m (fwhm; 5:1 demagnifying optics)
Photon line width:	< 2 meV (HeI radiation)
Photon flux density:	>50 times compared to an unfocused source
Source alignment:	CF 63 port aligner
Pumping:	2- or 3-stage differential pumping
Working distance:	Ca. 70 mm (clearance to measurement position)
Insertion depth:	Customized (to be defined)
Mounting flange:	DN 63 CF or DN 100 CF
Operating pressure:	Down to 10 <sup>-10</sup> mbar range
Adjustment & Discharge control	Via backside viewport
Cooling:	Water cooling
Bake out temperature:	Up to 250° C
Plasma Ignition:	Automatic
Capillary (mm):	0.8 / 1.2 / 1.7 (standard) / 2.2



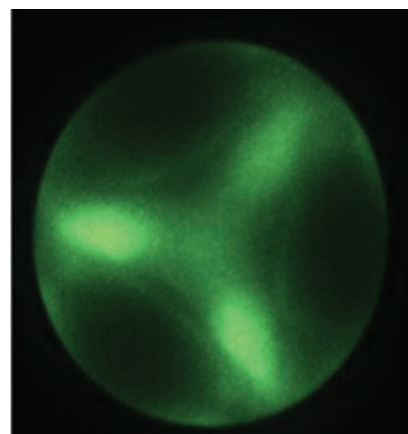
The VUV source power supply is a fully digital unit with integrated pressure measurement and automated plasma ignition. It delivers up to 1 kV anode voltage, up to 300 mA discharge current and a very stable discharge regulation.



Sample: Ag (111) , Fermi surface,  
He II excitation (40.8 eV)  
 $E - E_f = 40.8$  eV  
Dwell time 1000 s  
Sample region  $\sim 50$   $\mu$ m  
Measured with NanoESCA II  
Measured by: N.Weber, FOCUS GmbH



Application: HIS 14 HD retrofitted to an existing ARPES chamber.



Sample: Ag(111), d-bands  
HeI excitation (21.2 eV)  
 $E - E_f = 15.5$  eV  
Dwell time 5 s, sample region  $\sim 20$   $\mu$ m  
Measured with PEEM and Imaging Energy Filter (IEF)  
Measured by: N.Weber, FOCUS GmbH

