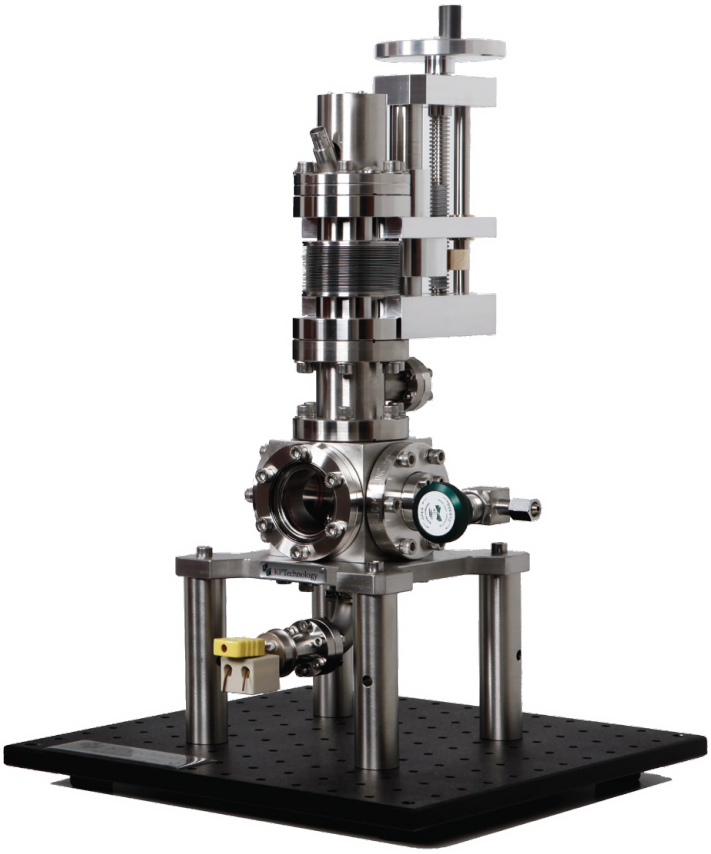
UHV Kelvin Probe Systems

UHVKP Corner Cube featuring UHVKP020

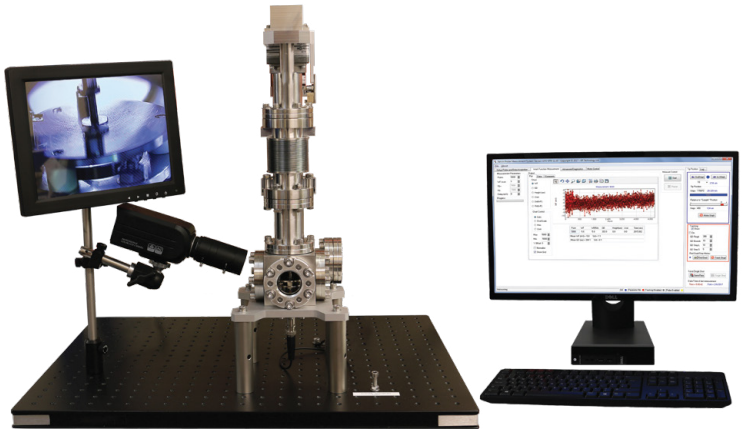
System Description

Our range of Ultra-high Vacuum Kelvin Probes gives the user the user full access to work function (Φ) or Volta potential (Δψ) and contact potential difference (CPD) measurements under vacuum. Each system comes with a high quality manual or motorized translator that enables reliable and accurate tip-to-sample positioning, and the unrivalled tracking system holds the tip separation constant at all times during the measurement. Even under these conditions, the work function resolution is 1-3 meV.
The dedicated software allows full digital control of all parameters to match the exact requirements of the sample under investigation. The recorded data is easily exportable to analysis software.

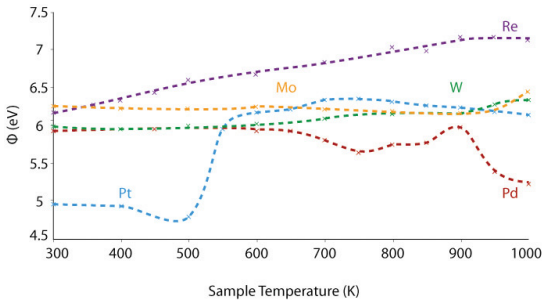
The UHV Kelvin probe can be mounted to the user's existing chamber or KP Technology Ltd offers an elegant UHVKP cell system (UHVKP corner cube) that can be used for ambient, UHV or gaseous measurements. This cell is completely modular and a host of additional extras can be added-on.



UHVKP corner cube system, mounted on breadboard. Cell with heater stage, gas inlet and Kelvin probe mounted vertically.



Example of our UHVKP corner cube system with camera and monitor highlighting the sample position.



Work Function of Metals versus Temperature under Vacuum I.D.Baikie et al. J. Vac. Sci. Technol. A 19.4, Aug 2001

Features

- Work function resolution of 1-3 meV
- Camera and monitor provided
- Gaseous or ambient measuring
- Modular system for upgrades and add-ons
- Automatic height regulation
- SPV, SPS and APS options available

Applications

- Organic and non-organic semiconductors
- Metals and metal alloys
- Thin films and surface oxides
- Solar cells and organic photovoltaics
- Corrosion e.g. protection and resistance

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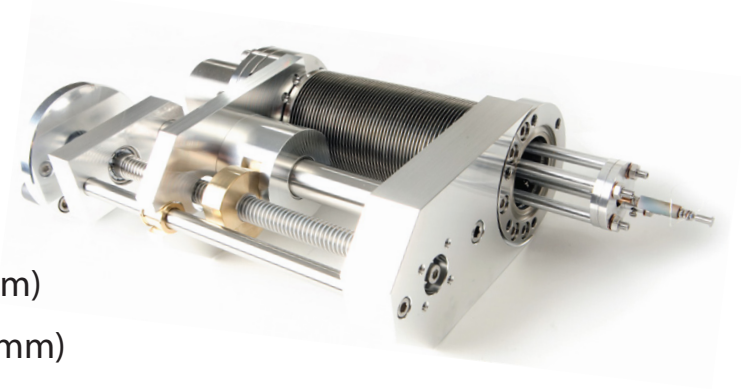
System Specifications	UHVKP020	UHVKP Corner Cube
Tip material/diameter	4 mm / 10 mm stainless steel tip (other diameters available)	
Work function resolution	1-3 meV	
Standard translator	50 mm manual translator	
Translator sizes possible	50 mm or 100 mm manual or motorised translators	
Height control (auto)	Approximately 1-5 mm by DC offset (unless motorised)	
Visualisation	Single-point work function / contact potential difference scans	
Oscilloscope	Digital TFT oscilloscope for real time signal	
Test sample	Available on request	
Control supplied	USB control with dedicated software	PC control with dedicated software
Detection system	Off-null with parasitic capacity rejection	
Mounting geometry	Normal to sample surface	
Mounting port	DN40 / CF70 (2.75 inch) OD	
Vacuum compatibility	2×10^{-11} mBar	
Flange to sample distance	User defined	
UHV cell	Not included	2.75" 6 port cell
Warranty	12 months	

Upgrades and Add-Ons

- Ambient Pressure Photoemission Spectroscopy
- Surface Photovoltage (QTH or LED)
- Surface Photovoltage Spectroscopy (400-1000 nm)
- Motorized or manual translators (50 mm to 100 mm)
- Heater stage and/or sample translation



Controlled gas Kelvin probe head with manual translator

The Company

KP Technology Ltd was founded with the aim of bringing to the market new surface research tools. These tools have featured in over 250 peer-reviewed client publications in the last 3 years. KP Technology Ltd also performs a significant amount of material research and training consultancy, mostly based upon the work function (Φ) or surface potential evaluation of client samples. KP Technology Ltd holds international patents on their Ambient Pressure Photoemission Spectroscopy (APS) system for measuring absolute workfunction. Along with a strong research and development division and over 500 systems shipped worldwide, this has placed KP Technology Ltd as the leading supplier of Kelvin probes in the world.

Contact

For quotation requests, further information or to discuss any research or particular measurements, please feel free to contact us:

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Or visit our websites
www.kelvinprobe.com

KP Technology Ltd is the proud winner of the Queens Award for Enterprise: International Trade 2013