

ULTRA-HIGH VACUUM KELVIN PROBE SYSTEM

Φ4

SYSTEM DESCRIPTION

Our Φ4 Ultra-high Vacuum Scanning Kelvin Probe system gives the user full access to work function (Φ) measurements under vacuum with the ability to alter the temperature from 77K to 860K using the optional heating/cooling stage. The Kelvin probe measurement has resolution of 1-3 meV for a 6mm tip on a conducting sample. The sample is mounted on a plate that is

located on a motorised (x, y, z) translator attached to a stainless steel vacuum chamber. The Φ4 also comes with an ambient-pressure photoemission spectroscopy system with a tunable source (3.4 - 7.0 eV). The deep ultra-violet (DUV) light spot measures approximately 4mm. Absolute work function measurements can be obtained with this system in the range of 3.4 - 7.0 eV with an accuracy of 0.1 eV.

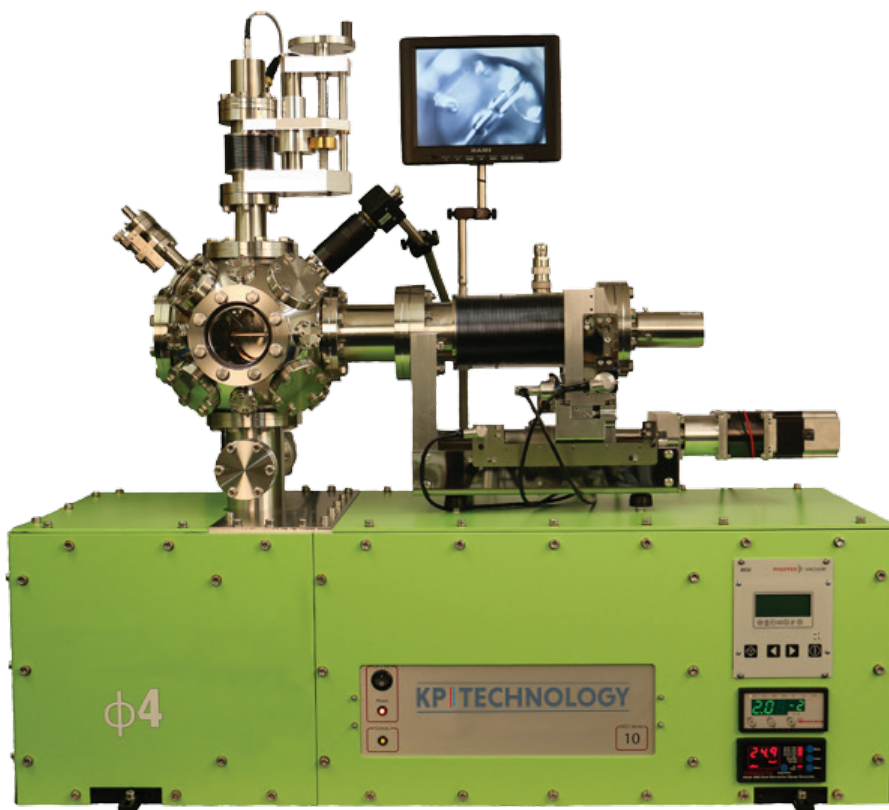
The system can be upgraded with Surface Photovoltage Spectroscopy through utilising other ports in the system chamber. If chosen, liquid nitrogen is used as the method of cooling the sample and heating is achieved by controllable direct current. An optical breadboard is used to support the chamber and standard power is required for operation.

FEATURES

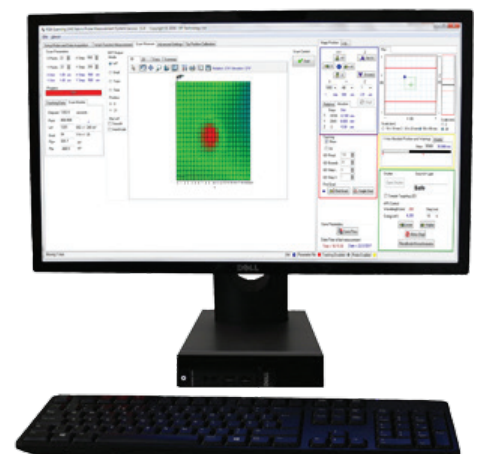
- Work function measurement
- Work function resolution of 1-3 meV
- UHV, gas or ambient measuring
- Absolute work function measurements
- Optional heating and cooling from 77K - 860K
- Options of SPV or SPS

APPLICATIONS

- Organic and non-organic semiconductors
- Metals/metal oxides/metal alloys
- Thin films
- Solar cells and organic photovoltaics
- Corrosion
- Diamond electronics



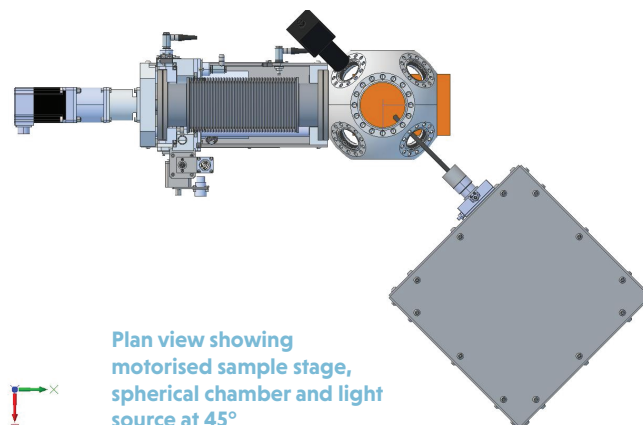
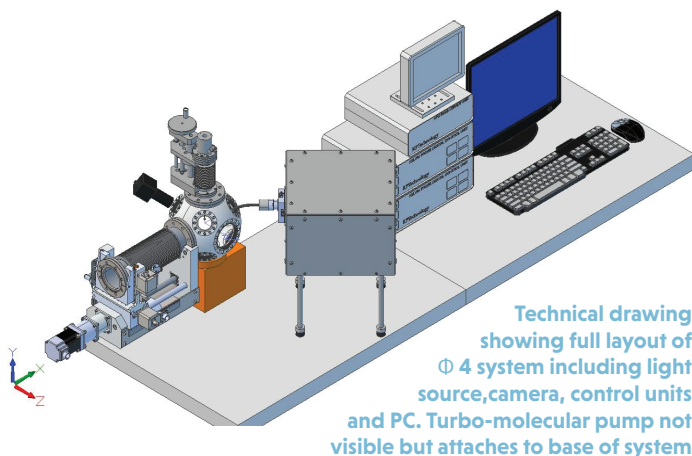
The Φ4 Ultra-high Vacuum Kelvin Probe system with ambient-pressure photoemission scanning capabilities and surface photovoltage spectroscopy and optional heating and cooling



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SYSTEM SPECIFICATIONS	Φ4
Tip material / diameter	4 - 6 mm stainless steel tip
Work function resolution	1 - 3 meV
Manual translation	50 mm manual translator
Scan control	Automatic via user interface (20 x 20 mm)
Sample stage	UHV compatible 3-axis motorised stage
Visualisation	3D map of surface potential and sample topography
Oscilloscope	Digital TFT oscilloscope for real time signal
Pump	Turbo-molecular pump backed by a rotary pump
Energy range (APS / SPS)	3.4 - 7.0 eV / 1.24 - 3.10 eV
Detection system	Off-null with parasitic capacity rejection
Mounting geometry	Normal to sample surface
Mounting port	DN40/CF70 (2.75") OD
Vacuum compatibility	1 x 10 ⁻⁹ mBar
Flange to sample size	User defined
UHV cell	DN63 spherical chamber
Warranty	12 months



KP Technology has been serving the scientific community since 2000 and has grown to be the leading supplier of Kelvin Probe systems worldwide.

Founded with the aim of bringing new surface research tools to the market, we offer a spectrum of dedicated Kelvin Probe systems for work function and energy level measurement. Our systems have been specially developed for applications in a variety of environments, ranging from ambient and controlled atmosphere to Ultra-High Vacuum. Recent developments include a patented dual mode Kelvin Probe and Photoemission Spectroscopy system for measurement of the absolute work function of a material by photoemission in air.

The range of Kelvin Probe systems offered, and the accuracy of the work function resolution provided by our unique systems is unsurpassed by any other Kelvin Probe supplier.

A strong research and development team, coupled with decades of experience in materials research and characterisation has supported the rapid growth KP Technology has experienced over the years. We now service hundreds of companies and research institutes worldwide in their materials research and characterisation requirements.

KP Technology systems have been named in hundreds of research papers and continue to feature in peer reviewed client publications year after year.

KP TECHNOLOGY

Contact us for more information, to request a quotation or to discuss how our systems can support your research.

E: sales@kelvinprobe.com

T: +44 1955 602 777

Or visit our website:

www.kelvinprobe.com

KP Technology Ltd. is the proud winner of the Queens Award for Enterprise: Innovation 2018

