

HIGH PRESSURE UHV SYSTEMS FOR PHOTOEMISSION SPECTROSCOPY APPLICATIONS

State-of-the-art system for HP analytical research



PREVAC HP-PES systems is a unique, superior performance analysis system for state-of-the-art high pressure photoemission spectroscopy. It is quipped with a HP analyser but the focus is on a highly flexible sample environment, partly in form of a newly developed, highly versatile, gas cell, partly in form of the possibility of replacing the analysis chamber with a completely different chamber setup. The station will thus allow for frontier research on gas-solid and gas-liquid interactions. The system is equipped with automated control features to allow for safe and efficient operation of many different types of samples by many different operators.

PREVAC EA15-HP ANALYSER

EA15-HP hemispherical energy analyser (XPS/UPS) allows due to special designed extraction cones and automatic vacuum control, high-resolution PES measurements in static and dynamic environments from 10^{-10} mbar up to 50 mbar. Equipped with a total number of 11 slits, the analyzer offers the possibility to choose between best energy resolution and best intensity. Mean radius: 150 mm. Kinetic energy range: 0-3000 eV.



EA15 HP

RUDI-EA2

Very stable and low noise high-voltage power supply.



ANALYSIS CHAMBER

High pressure analysis chamber with 4-6 axes UHV manipulator (LN_2 or LHe cooled, open or closed cycle)



HIGH PRESSURE CELL MANIPULATOR

Special designed 3-axes high pressure cell manipulator with IR laser heating possibility (double Z axes: one for gas cell proper placement and second for high precise sample positioning). For easy disconnection from the gas cell chamber, the manipulator is mounted on the rails.

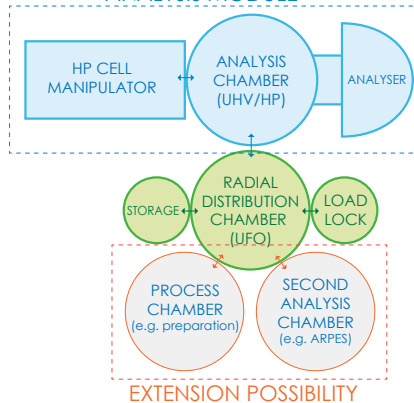


GAS DOSING SYSTEM

The purpose of the gas system is to deliver controlled flow, pressure (range from 10^{-7} mbar to 50 mbar) and composition of ultraclean gases to the high pressure cell (for in situ NAPXPS experiments) and reaction cell (for off-line measurements at higher pressures).



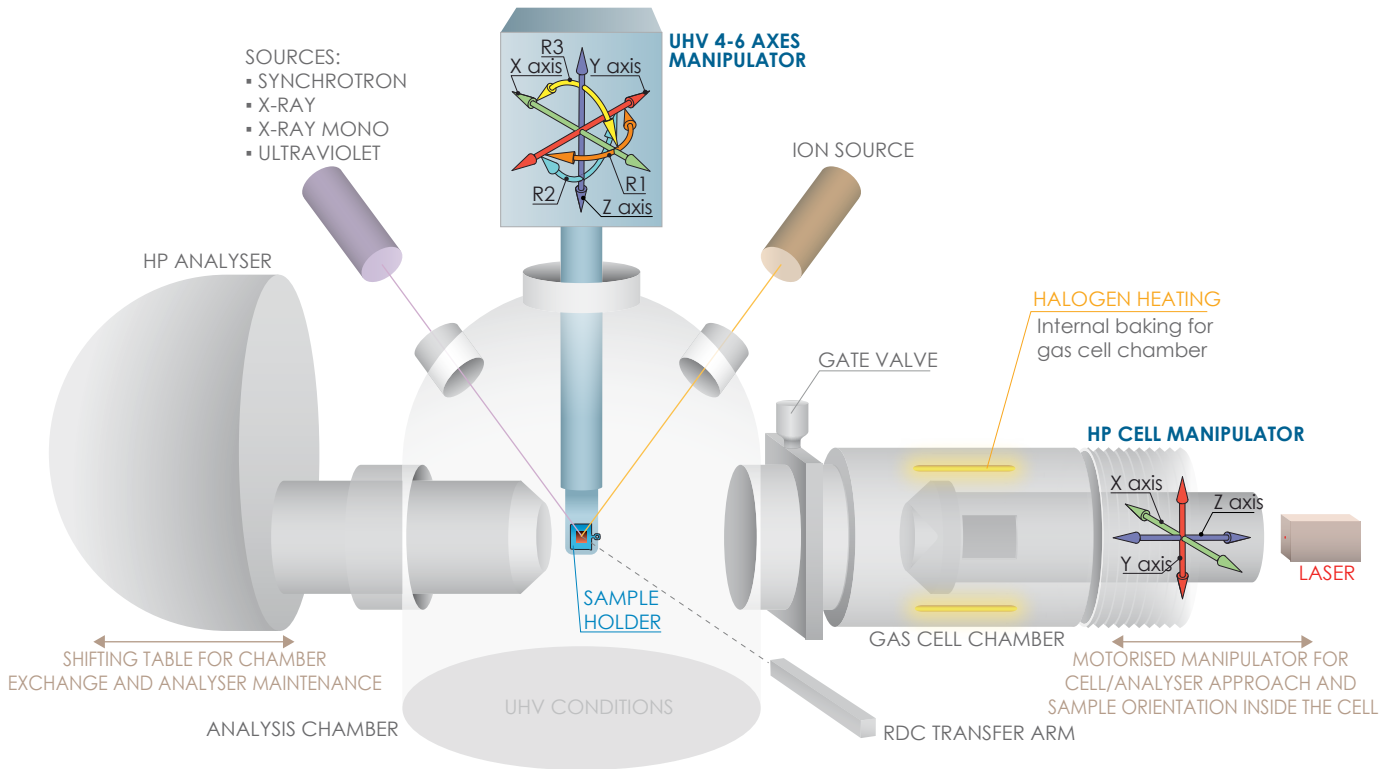
ANALYSIS MODULE



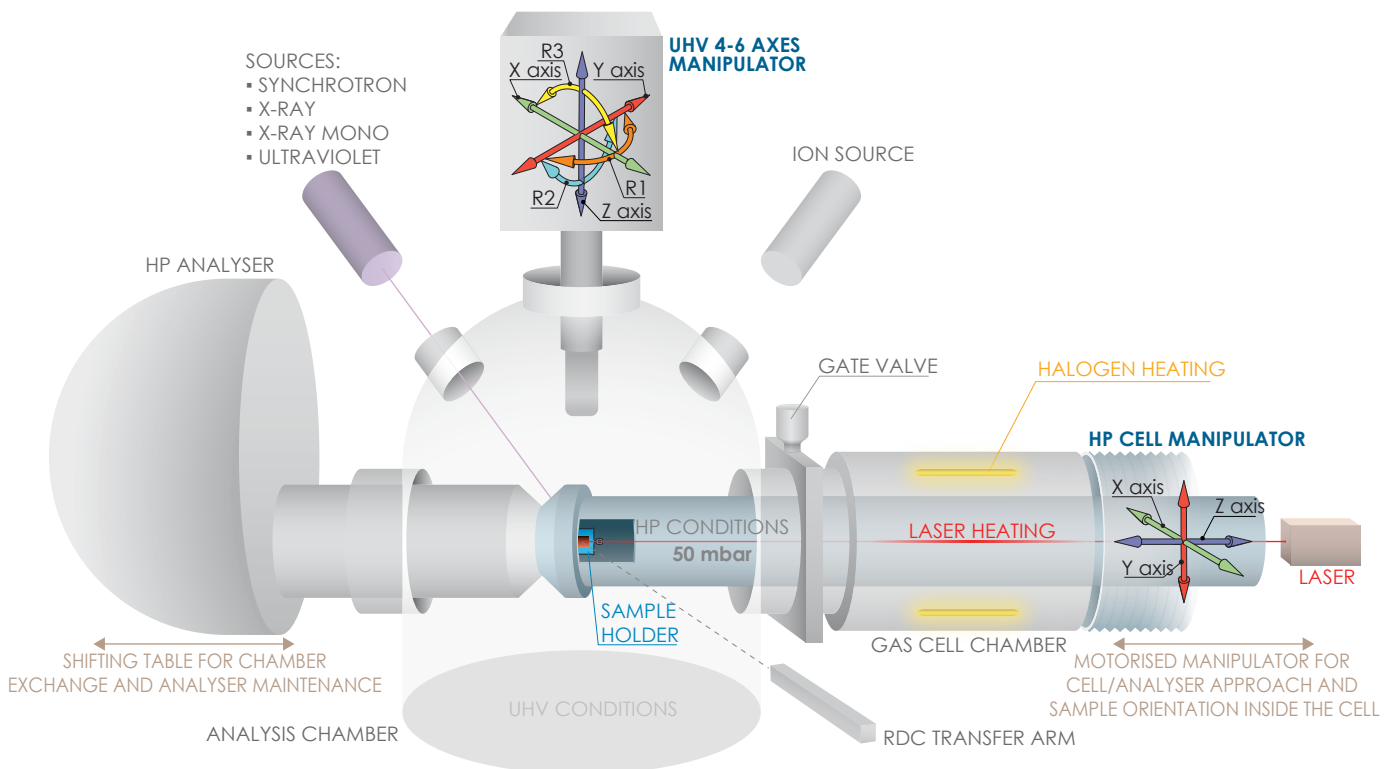
The heart of the system is the analysis module that is based on the high pressure analyser and a gas cell concept designed by PREVAC.

HP cell manipulator design allows for sample heating by IR laser illumination (the sample temperature over 800 °C is reachable within the cell), resistive heating (up to 700 °C) and LN₂ cooling.

ANALYSIS MODULE GEOMETRY | SAMPLE IN UHV CONDITIONS

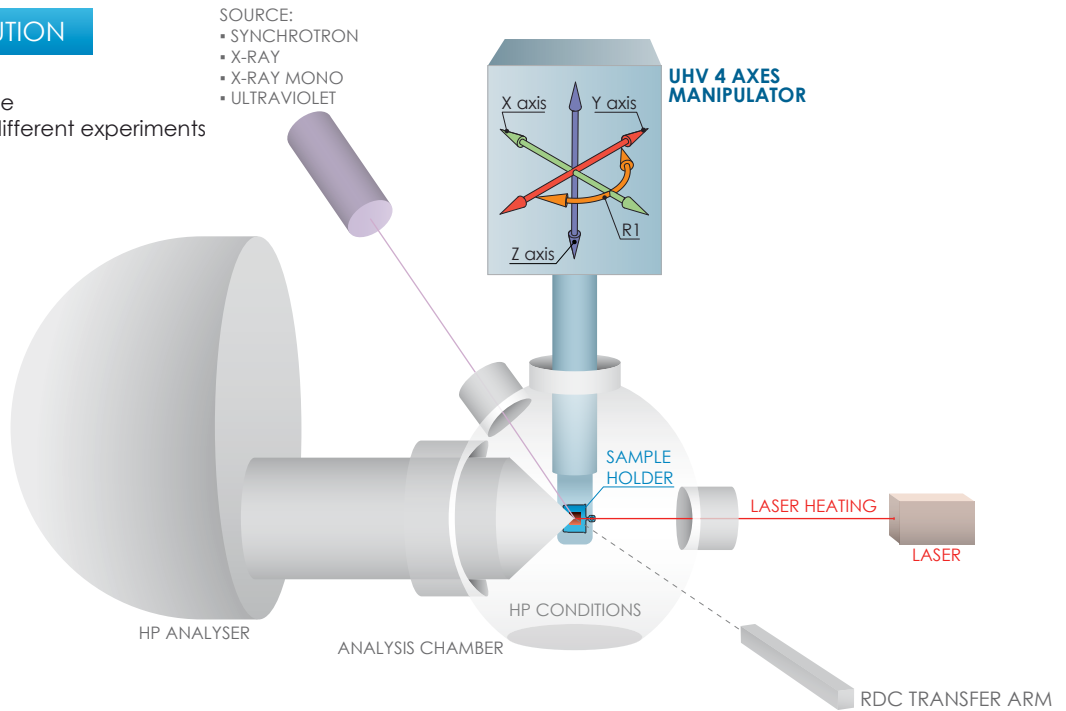


ANALYSIS MODULE GEOMETRY | SAMPLE IN HP CONDITIONS



BACK FILLING SOLUTION

- **Minimum volume**
- Easy chamber exchange
- Different geometry for different experiments
- Chamber coating
- Resistive & IR heating
- LN₂ cooling

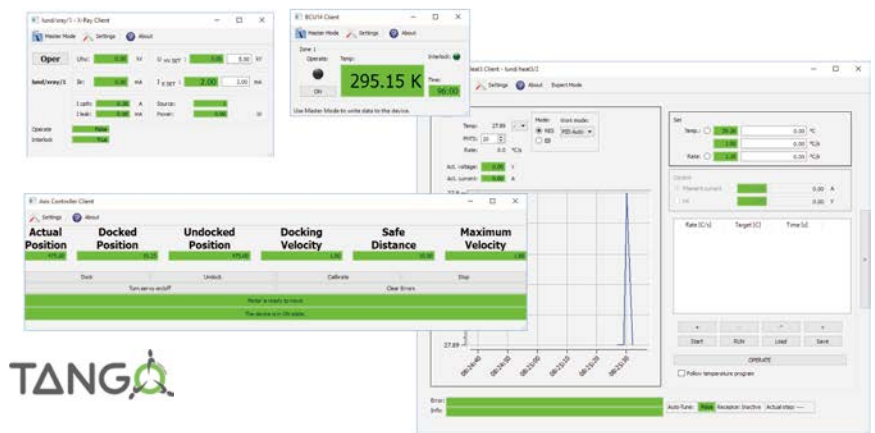


SOFTWARE PROCESS CONTROL AND AUTOMATION

The system is fully automated and designed for maximum measurement capabilities and ease of use. Software environment allows for system control and operation, including simple measurement methodology. A well-defined programming interface makes integration to external control environments (e.g. TANGO) straightforward.



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If you need any further information, please do not hesitate to contact our sales department

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