

XPS of Ag and N₂ at 25 mbar

Application Note

This application note shows near ambient pressure (NAP) measurements performed with the NAP XPS System for the University of Norte Dame, Prof. Franklin Tao. The system is equipped with a NAP-cell, a PHOIBOS 150 NAP and a MicroFocus 600 x-ray monochromator. The data shown has been acquired on a Ag polycrystalline sample, with the NAP-cell operated at different nitrogen pressure levels. The pressure in the NAP-cell has been increased from UHV up to 25 mbar and back to UHV again. The cell has been operated in static conditions, meaning that the exit of the cell was closed and the pressure increased until the desired value had been reached. Thus, the given pressure is the background pressure in the cell. The sample had been placed at a distance of 300 micrometer in front of the 300 micrometer NAP nozzle leading into the wide angle pre-lens of the analyzer. The x-ray source was operated at a power of 20 W.

The data shows that even with only 2 minutes acquisition time for the two spectra at each pressure level, XPS measurements at 25 mbar can comfortably be performed. The data shows the reduction of the Ag peak, while the gas phase peak of nitrogen becomes visible.

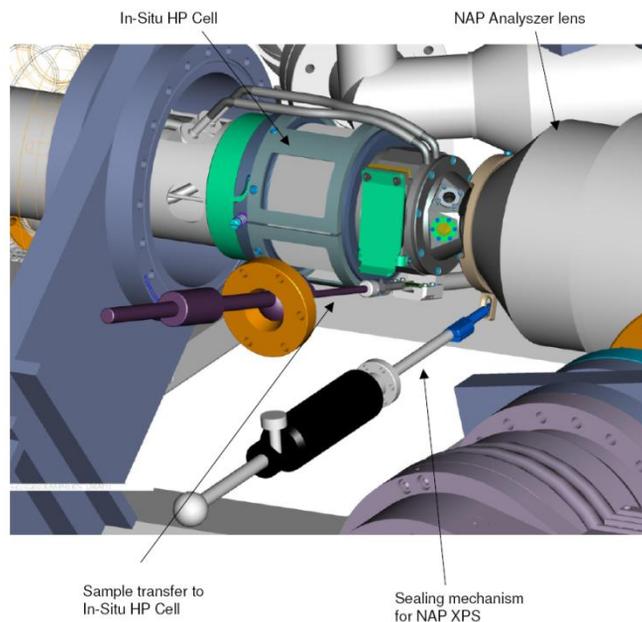


Fig. 1: The NAP cell attached to the pre-lens of the PHOIBOS 150 NAP analyzer.

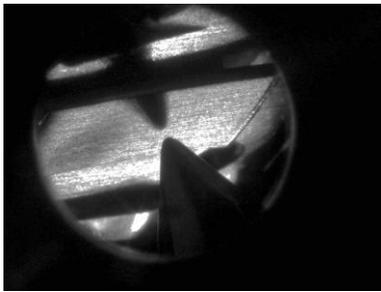


Fig. 2: The Ag sample in front of the nozzle, seen by the system-microscope.

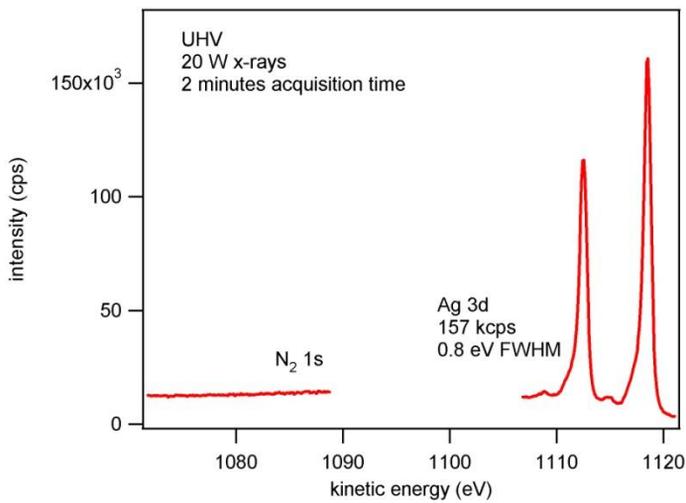


Fig. 3: XPS spectra of Ag and N₂ at UHV in the NAP-cell.

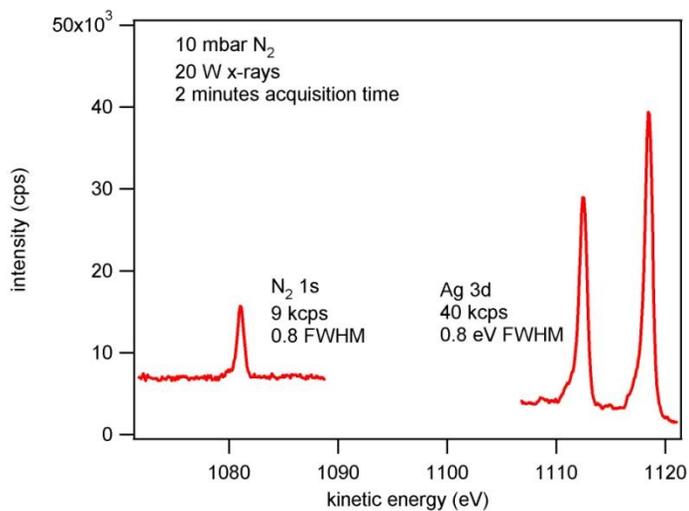


Fig. 4: XPS spectra of Ag and N₂ at 10 mbar N₂ in the NAP-cell.

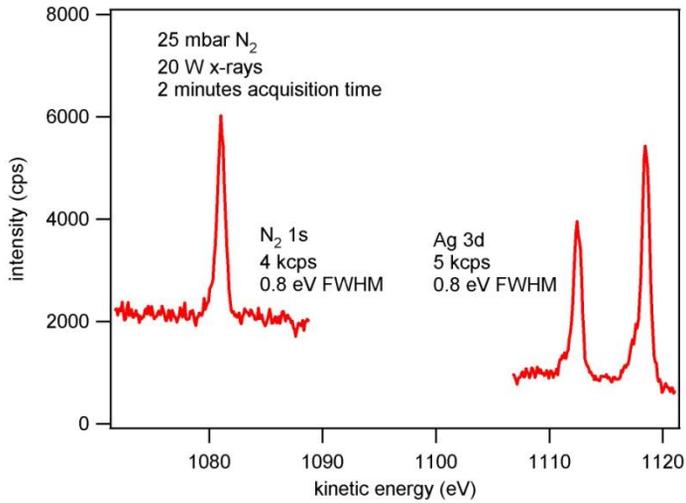


Fig. 5: XPS spectra of Ag and N₂ at 25 mbar N₂ in the NAP-cell.

SPECS Surface Nano Analysis GmbH
Voltastrasse 5
13355 Berlin · GERMANY

Phone: +49 30 467824-0
Fax: +49 30 4642083
E-mail: support@specs.com
<http://www.specs.com>