

Surface Science 94 (1980) 1–15  
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**THERMAL RESISTIVITY OF LAYERED  $^4\text{He}$  FILMS ON ZYX GRAPHITE BELOW 2 K**

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Received 25 October 1979; accepted for publication 27 December 1979

Thermal resistance and vapor pressure isotherms were taken near superfluid onset for ultra-thin helium films adsorbed on a ZYX graphite wafer between 1–2 K and 3–7 atomic layers. Our data are consistent with previous graphite onsets and are compatible with a current model of film droplet formation. Overlap of thermal resistance curves at 1.19 and 139 K is believed to be associated with discrete layering effects of 2D superfluid film properties.

Surface Science 94 (1980) 16–28  
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**PHOTOEMISSION STUDIES OF CLEAN AND OXYGEN-COVERED Pt 6(111)  $\times$  (100) \***

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Received 13 August 1979; accepted for publication 26 December 1979

Employing the enhanced sensitivity obtained by using synchrotron radiation near the Cooper minimum for the 5d valence electrons, we have located the oxygen 2p and 2s levels for oxygen chemisorbed on a Pt 6(111)  $\times$  (100) crystal. We find the oxygen 2p level located  $-6$  eV with a FWHM of 3 eV and the 2s at  $-21.6$  eV. A factor of four difference in saturation coverage is measured between temperatures of 300 and 120 K, but the position and width of the 2p level is independent of temperature. We observe also the  $1b_1$  orbital of weakly adsorbed  $\text{H}_2\text{O}$  molecules, which has pure O 2p parentage; from the intensity of this orbital, we are able to suggest why it is difficult to observe the oxygen 2p signal at low photon energies. In addition, we note a strong preferential attenuation in the Pt states near  $E_F$  for the adsorbed  $\text{H}_2\text{O}$  in spite of the weak nature of the bond.

Surface Science 94 (1980) 29–40  
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**AIDER (ANGLE-OF-INCIDENCE DERIVATIVE ELLIPSOMETRY AND REFLECTOMETRY) – IMPLEMENTATION AND APPLICATION**

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Received 26 September 1979; accepted for publication 7 December 1979

An experimental arrangement is described whereby spectroscopic polarization–modulation ellipsometry can be extended to the measurement of both the usual parameters  $\psi$  and  $\Delta$  and