Journal of Electron Spectroscopy and Related Phenomena
Volume 29, Issue 1, 1983, Pages 187-190
The International Journal on Theoretical and Experimental Aspects of Electron Spectroscopy

Abstract

doi:10.1016/0368-2048(83)80060-7
Cite or Link Using DOI

Adsorbate structure modeling based on electron energy loss spectroscopy and lattice dynamical calculations: Application to O/A1(111).

R.L. Strong, B. Firey, F.W. deWette and J.L. Erskine

Available online 5 November 2001.

Abstract

High-resolution electron energy loss spectroscopy (EELS) and lattice dynamical calculations based on pair interactions are used to investigate oxygen chemisorption on Al (111). The O/Al(111) System is complicated by the simultaneous formation of an oxygen overlayer and underlayer. Oxygen atoms at overlayer and underlayer sites near the Al(111) surface produce well-defined vibrational loss peaks in EELS spectra, however, dynamical coupling between the oxygen atoms and with the host lattice cause vibrational energies to shift with overlayer and underlayer concentrations. These shifts as well as structural parameters of the O/Al(111) complex can be deduced from a slab model of the surface lattice dynamics.

Journal of Electron Spectroscopy and Related Phenomena
Volume 29, Issue 1, 1983, Pages 187-190
The International Journal on Theoretical and Experimental Aspects of Electron Spectroscopy