

Surface Science 151 (1985) 37–51
North-Holland, Amsterdam

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“CHEMICAL EFFECTS” OF VIBRATIONAL LIFETIME AND FREQUENCY OF CO ON Ag

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Received 22 August 1984; accepted for publication 5 November 1984

The Raman band of the stretch vibration of CO adsorbed on cold deposited silver films shifts to lower frequency and broadens with increasing coverage. Isotopic mixture experiments show that this is not caused by dipolar interactions. A possible explanation of this pure “chemical effect” based on a finite density of the CO $2\pi^*$ resonance at the Fermi energy is proposed and critically discussed.

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Surface Science 151 (1985) 52–66
North-Holland, Amsterdam

THE INTERACTION OF OXYGEN WITH InSb(110) SURFACES

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Received 26 July 1984; accepted for publication 5 November 1984

The room-temperature adsorption of molecular, unexcited oxygen on InSb(110) surfaces either cleaned by sputtering-annealing techniques or cleaved by the wedge technique has been investigated as a function of the surface disorder. Auger electron spectroscopy, reflection high energy electron diffraction, low energy electron diffraction, and field effect spectroscopy are employed to analyse from the correlations of chemical, structural, and electronic properties the initial stages of oxygen sorption. A two-stage adsorption process has been found on either disordered or ordered surfaces. In the initial stage of adsorption the coverage increases with exposure depending on the surface disorder, and oxygen is suggested to adsorb at defect sites. The main chemisorption shows a saturation in coverage at high exposures with the oxygen presumably adsorbed at regular lattice sites. The oxygen adsorption causes changes of band bending indicating for the p-substrates the formation of inversion layers.

Surface Science 151 (1985) 67–90
North-Holland, Amsterdam

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Si MOLECULAR BEAM EPITAXY: A MODEL FOR TEMPERATURE DEPENDENT INCORPORATION PROBABILITIES AND DEPTH DISTRIBUTIONS OF DOPANTS EXHIBITING STRONG SURFACE SEGREGATION

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Received 6 July 1984; accepted for publication 15 October 1984

A model describing the incorporation of thermal dopants into single crystal films grown by molecular beam epitaxy (MBE) is presented. The model is general, accounts for dopant surface