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Abstract

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Surface science letters

Hydrogen adsorption at Nb(100): Photoemission evidence of two-state exchange involving subsurface states

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Abstract

Temperature dependent properties of electronic states resulting from hydrogen adsorption on Nb(100) surfaces have been studied by photoemission spectroscopy using synchrotron radiation. The most prominent hydrogen induced feature in photoemission spectra exhibits a temperature dependence that requires contributions from two distinct states. Analysis of the photon energy dependent cross section of the hydrogen induced features suggests that hydrogen chemisorption sites are located below the surface. These results have important consequences for kinetic models that attempt to account for hydrogen uptake by Nb.

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