

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Photoemission core level shifts and phonon broadening for Cs film on Cu(100) XUBING ZHOU, KEVIN KOCH, J.L. ERSKINE — Department of Physics, University of Texas at Austin, Austin, TX 78712. We have measured Cs 5p photoemission core level broadening data for Cs film on Cu(100) at different temperatures and have obtained bulk-atom and surface-atom values of the zero-temperature phonon width and the effective Debye temperature, which governs the temperature dependence of the broadening. The coupling constant C for alkali metals in the phonon-broadening theory of Hedin and Rosengren[1] is about 30% higher in the surface than in the bulk. This result is compared with experiment results on other alkali metals[2]. We also studied the temperature dependent binding energy shifts for the Cs 5p core level peaks and our data fit the lattice expansion theory very well except at temperature higher than 220 K. The high temperature deviations are proved to be caused by thermal evaporation of Cs film. [1] L. Hedin and A. Rosengren, J. Phys. F **7**, 1339 (1977). [2] D.M. Riffe and G.K. Wertheim, Phys. Rev. B **61**, 2302 (2000).

Xubing Zhou

Date submitted: 22 Nov 2008

Electronic form version 1.4