

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Vibrational energy loss structure in very low energy photoelectron spectra of CO/Cu(001) surface** KEI HAYASHI, RYUICHI ARAFUNE, SHIGENORI UEDA, Photodynamics Research Center, RIKEN, Sendai 980-0845, Japan, YOUICHI UEHARA, Research Institute of Electrical Communication, Tohoku University, Sendai 980-8577, Japan, SUKEKATSU USHIODA, Japan Advanced Institute of Science and Technology, Ishikawa 923-1292, Japan — We have measured the very low energy photoelectron spectra of the CO/Cu(001) surface by using low energy photons (4.821 eV) as the excitation light source. The spectra for  $^{12}\text{C}^{16}\text{O}$  show a step in the photoelectron intensity at 254 meV below the Fermi level. An isotropic shift to 240 meV was observed for  $^{13}\text{C}^{18}\text{O}$ . These energies agrees with the vibrational energies of the C-O stretching mode. Furthermore such spectral feature did not appear for the clean Cu(001) surface. Thus we conclude that the observed step in the photoelectron spectra arises from the energy loss of photoelectrons through excitation of the vibrational mode.

Kei Hayashi  
Photodynamics Research Center, RIKEN, Sendai 980-0845, Japan

Date submitted: 29 Nov 2004

Electronic form version 1.4