

Final state interaction observed in M(2,3)VV Auger profile of Cu(110)

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Abstract: We have measured the M(2,3)VV Auger spectra of Cu(110) and studied the final state interaction following the Cu 3p core electron excitation. We have observed that the kinetic energy of the M(2,3)VV Auger electron shifts to an energy higher than that of the normal Auger electrons near the Cu 3p threshold, and it converges to the constant kinetic energy of the normal Auger electrons as the excitation energy increases above the Cu 3p threshold. In the excitation energy dependence of the kinetic energies of the M(2,3)VV Auger electrons, we observed step features at the excitation energies corresponding to the 3p core electron excitations to the L(1) and X(1) van Hove singularities in the valence states. The kinetic energy shifts of the M(2,3)VV Auger electrons are reasonably understood by considering the localization of the two-hole Auger final state and the hybridization between Cu 3d states and other valence states.

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