

Abstract Submitted
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Electron emission from surfaces resulting from low energy positron bombardment¹ S. MUKHERJEE, K. SHASTRY, A. H. WEISS, U. Texas at Arlington — Measurements of the energy distribution of electrons resulting from very low energy positron bombardment of a polycrystalline Au and Cu(100) surfaces provide evidence for a single step transition from an unbound scattering state to an image potential bound state. The primary positron energy threshold for secondary electron emission and cutoff in the secondary electron energy spectra are consistent with a process in which an incident positrons make a transition from a scattering state to a surface-image potential bound while transferring all of the energy difference to an outgoing secondary electron. Estimates of the probability of this process as a function of incident positron energy are also presented. Background free Auger spectra of the MVV transition in Cu and the OVV transition in Au were obtained by setting the incident positron beam energy below the secondary electron emission threshold. Auger electron emission resulted from the annihilation of surface state positrons with core electrons. The low energy tail associated with the low energy CVV Auger transitions in Cu and Au were found to have integrated intensity several times larger than Auger peak providing strong evidence for multi-electron Auger processes.

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