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Auger-Photoelectron Coincidence Spectroscopy measurement of the secondary electron distribution from 0 eV to 81 eV, created by the MVV Auger transition in Cu (100) K. SHASTRY, S. MUKHERJEE, A.H. WEISS, University of Texas at Arlington, S.L. HULBERT, Brookhaven National Laboratory, R.A. BARTYNSKI, Rutgers University — In conventional spectroscopic measurements, low energy Auger lines are superimposed upon a large background due to secondary electrons that arise from loss processes that are unrelated to the Auger process. Here we present the results of measurements in which Auger-Photoelectron coincidence techniques were used to eliminate background unrelated to the Auger process and obtain the energy distribution of electrons emitted as a result of the $M_{23}VV$ transition in Cu (100) over the full range of emitted energies (0 eV – 81 eV). The measurements revealed a well formed Auger peak at ∼60eV accompanied by a low energy tail (LET) associated with the MVV transition. The LET extends to 0 eV and has a broad maximum at ∼ 6eV. The integrated intensity of the LET was ∼ 6 times larger than that of the Auger peak itself. The origin of the LET will be discussed in terms of extrinsic mechanisms in which electrons from the peak lose energy as they propagate to the sample surface, as well as intrinsic mechanisms in which multi-electron Auger processes distribute the energy gained by the filling of the core-hole to multiple electrons.

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