

The Cu(001) Fermi Surface and Valence Band

studied by Two-Dimensional Photoelectron Spectroscopy

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ABSTRACT

Three-dimensional structure of Cu Fermi surface and cross section of valence bands were measured and visualized by stacking a series of photoelectron angular distribution (PEAD) patterns with different photon and photoelectron energies. PEAD patterns from the Cu(001) surface were measured using a two-dimensional display-type spherical mirror analyzer and a linearly polarized synchrotron radiation. From the analysis of the angular dependence of the dipole transition probability, the atomic orbitals composing the state of Fermi surface were determined to be $4p$ atomic orbitals with their angular momentum axes pointing outward.

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