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Photoelectron spectroscopy of cubic actinide compounds JOHN J. JOYCE, TOMASZ DURAKIEWICZ, LANL, GERRY H. LANDER, JRC-ITE, CLIFFORD G. OLSON, AMES, MARTIN T. BUTTERFIELD, ELA GUZIEWICZ, LUIS A. MORALES, LANL, KURT MATTENBERGER, OSCAR VOGT, ETH —
Photoelectron spectroscopy (PES) was applied in investigating the electronic structure of single crystals of USb, NpSb, PuSb, UTe, NpTe and PuTe. Angular-resolved studies were perfomed on U compounds. The photoemission spectral features found within the valence band suggest all six materials contain comparable amounts of $5f$ and conduction character. Some interesting and unexpected momentum dependent effects are observed in the angular-resolved studies of USb. In PuTe, we confirm the presence of a strong three-peak structure near E_F, which has been interpreted as the signature of an intermediate valence state in similar materials. Hybridization of the $5f$ electrons with the conduction band is found within the series and the level of localization is shown to increase from Te to Sb. A surprising correlation between the binding energy of the peak bearing most of the $5f$ spectral weight and the magnetic moment is discovered within the series, for which some explanations are suggested.

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