Abstract Submitted
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Electronic structure of Pu metal and intermetallics as determined by ARPES and XPS[1] MILES BEAUX, TOMASZ DURAKIEWICZ, KEVIN GRAHAM, JEREMY MITCHELL, SCOTT RICHMOND, ERIC BAUER, DAVID MOORE, FRANZ FREIBERT, PAUL TOBASH, JOHN KENNISON, JOHN JOYCE, Los Alamos National Laboratory — We exploit our unique capability in angle resolved photoemission (ARPES) measurement for plutonium materials to compare the electronic structure of delta Pu, PuCoIn5 and PuCoGa5. We present a systematic study for polycrystalline delta Pu metal as well as the first photoemission measurements on single crystals of the superconductor PuCoIn5. These first results for PuCoIn5 are compared to results for PuCoGa5 and variations in the electronic structure are attributed to differences in 5f hybridization with conduction states based on differences in lattice values. Laser ablation was used to clean the surface of Pu materials and cleanliness was monitored through O 1s and Pu 4f core levels as well as valence band features. Observation of these spectra provides better insight into the differentiation of contaminant features versus the strong correlation effects within Pu metal.

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