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The Electronic Correlation Strength of Pu[1] R.C. ALBERS, JIAN-XIN ZHU, Los Alamos National Laboratory, A. SVANE, N.E. CHRISTENSEN, Aarhus University, MARK VAN SCHILFGAARDE, Arizona State University — Many materials have strong electron-electron correlation effects that can cause large deviations in electronic structure and materials properties from those predicted by conventional band-structure theory based on the local density approximation. We present a new method or scale to quantify electronic correlations in strongly correlated electron systems and apply it to the different phases of elemental Pu. Using the GW approximation, we show that the f-electron band-width reduction due to correlation effects scales as a function of the initial LDA bandwidth. This relationship is a universal relationship in that it is independent of crystal structure and atomic volume.

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