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Global k-space perspective of temperature-dependent U f-states in URu_2Si_2[1] J.D. DENLINGER, Lawrence Berkeley National Lab, L. DUDY, U. Wuerzburg, Germany, J.-S. KANG, Catholic U. of Korea, J.W. ALLEN, U. of Michigan, N.P. BUTCH, U. of Maryland, M.B. MAPLE, UC San Diego — In recent years, high-resolution angle-resolved photoemission (ARPES) measurements [1] have identified a narrow band of f-states close to the Fermi level in URu_2Si_2 whose temperature dependent spectral weight and/or energy shifts correlate to the hidden order transition at 17.5K. These f-states have been observed close to normal emission at a few select photon energies of $\sim$ 6, 21 and 30 eV corresponding to momentum space locations close to Z, Γ and Z points respectively. We attempt to provide a more global k-space context for the presence of such f-states and their relation to the bulk Fermi surface topology using synchrotron-based wide-angle and photon energy-dependent ARPES mapping of the electronic structure. In addition, x-ray polarization and small-spot spatial dependences are exploited to assist identification of these narrow-band f-states and their relation to specific U- or Si-terminations of the cleaved surface.

[1] A.F. Santander-Syro, Nat. Phys. 2009; R. Yoshida, Phys. Rev. B 2010; G.L. Dakovski, Phys. Rev. B 2011.

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