

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Band renormalization at the hidden order transition in URu₂Si₂

T. DURAKIEWICZ, G. DAKOVSKI, Y. LI, G. RODRIGUEZ, J.J. JOYCE, E.D. BAUER, P.H. TOBASH, Los Alamos National Laboratory, P.M. OPPENEER, Uppsala University, P.S. RISEBOROUGH, Temple University — The temperature-dependent evolution of the band structure in the hidden order (HO) system URu₂Si₂ was investigated by angle-resolved photoemission (ARPES) and time-resolved photoemission (trARPES) methods. The band structure changes with temperature, and the two dominant effects set the scale for the observed variations near the Fermi level. A hybridization gap is opening at around 70K, and the smaller gap forms below the HO transition temperature. The quasiparticle dynamics across the transition is measured with trARPES. The 3D nature of the electronic structure results in differences obtained by ARPES performed at different photon energies. We show how three different experiments, performed at 7eV, 21.2eV and 34eV can be reconciled with one model when the 3D electronic structure is taken into account.

Tomasz Durakiewicz
Los Alamos National Laboratory

Date submitted: 27 Dec 2010

Electronic form version 1.4