Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

**Theory of the Unusual Quasiparticle Excitations in $USb_2$** PETER RISEBOROUGH, XIAODONG YANG, Temple University — A band of long-lived quasiparticles with a renormalized dispersion relation that does not cross the Fermi surface has been observed in $USb_2$ by angle resolved photoemission measurements. The existence of a kink in the quasiparticle dispersion relation of a band that does not cross the Fermi energy is unprecedented. We show that the observed renormalization does not come from the standard theory of electron-phonon renormalizations. We consider the effect of the interband self-energy and vertex corrections as possible causes for the formation of the renormalized quasiparticles. The effect of temperature is also considered.

Peter Riseborough
Temple University

Date submitted: 18 Oct 2008 Electronic form version 1.4