Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Anomalous electronic correlations in ground state momentum density of $Al_{97}Li_3$ B. BARBIELLINI, Northeastern U., J. KWIATKOWSKA, Polish Academy of Sciences (Poland), S. KAPRZYK, Northeastern U. and AGH (Poland), A. BANSIL, Northeastern U. , H. KAWATA, N. SHIOTANI, Photon Factory (Japan) — We report high resolution Compton scattering measurements on an $Al_{97}Li_3$ disordered alloy single crystal for momentum transfer along the [100], [110] and [111] symmetry directions [1]. The results are interpreted via corresponding KKR-CPA (Korringa-Kohn-Rostoker coherent potential approximation) first principles computations. By comparing spectra for $Al_{97}Li_3$ and Al, we show that the momentum density in the alloy differs significantly from the predictions of the conventional Fermi liquid picture and that the ground state of Al is modified anomalously by the addition of Li. Work supported in part by the USDOE.
[1] J. Kwiatkowska, B. Barbiellini, S. Kaprzyk, A. Bansil, H. Kawata, and N. Shiotani, Phys. Rev. Lett. 96 (2006) 186403.

B. Barbiellini
Northeastern U.

Date submitted: 15 Dec 2006 Electronic form version 1.4