Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Angle Resolved Photoemission study of $CeMIn_5$ (M = Co, Rh)*

F. WANG, J.W. ALLEN, Univ. of Michigan, J.D. DENLINGER, Lawrence Berkeley National Lab, KAI ROSSNAGEL, Univ. of Kiel, M.B. MAPLE, U.C. San Diego, S. ELGAZAAR, P.M. OPPENEER, Uppsala Univ. — Angle-resolved photoemission (ARPES) and Fermi Surface (FS) mapping measurements are presented for the paramagnetic phases of the heavy fermion superconductor $CeCoIn_5$, the antiferromagnet $CeRhIn_5$, and the quantum critical crossover alloy $Ce(Co_{0.8}Rh_{0.2})In_5$, revealing more detailed electronic structure information than previously reported. Analysis of multi-Brillouin zone ARPES electronic structure maps allows detailed comparison of the FS topologies and band dispersions between compounds with different compositions and also with the FS structures observed in de Haas van Alphen experiments. Multiple sheets of large-orbit quasi-2D pieces of FS are observed to be in agreement with LDA predictions, but small-size contours near the zone center are more discrepant. The data will be assessed in relation to current thinking about the physics of these interesting materials.

* Supported by the U.S. NSF at U. Mich. (DMR-03-02825) and by the DOE at the Advanced Light Source (DE-AC03-76SF00098).

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Date submitted: 11 Jan 2005 Electronic form version 1.4