Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Experiments for probing the macroscopic quantum coherence and pairing state in FeAs-based superconductors C.C. TSUEI, CHING-TZU CHEN, M.B. KETCHEN, J.R. ROZEN, IBM T.J. Watson Research Center, Z.A. REN, Z.X. ZHAO, Chinese Academy of Sciences, Beijing, China, X.H. CHEN, University of Science and Technology of China, Hefei, Anhui, China — The recent discovery of superconductivity in FeAs-based pnictides has added another member to the growing family of high-temperature superconductors. In sharp contrast to cuprates, the new superconductor has a T_c up to 55 K despite the absence of strong electronic correlation. Furthermore, its physical properties are best described by the multi-orbital electronic band structure. It is therefore of great interest to explore the consequence of these novel characteristics on the nature of Cooper pairing in the new FeAs superconductors. In this talk, we will present the design and implementation of experiments which probe the pairing state and the macroscopic quantum coherence across the interface between a pnictide and a conventional s-wave superconductor. Preliminary results will be discussed.

C.C. Tsuei
IBM T.J. Watson Research Center

Date submitted: 21 Nov 2008 Electronic form version 1.4