Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Possible proximity effect in metal/Mott insulator bilayers[1] KO MUNAKATA, THEODORE GEBALLE, MALCOLM BEASLEY, Geballe Laboratory for Advanced Materials — We have synthesized thin Cu/CuO bilayers and studied their transport properties compared with Cu/MgO bilayers as a means of exploring a possible proximity effect between a metal and a correlated (Mott/charge transfer) insulator. Systematic comparisons of the transport properties showed in several different samples that the Cu/CuO samples have distinct features in their magnetoresistance that are not seen in the Cu/MgO bilayers. The data can be analyzed in the framework of the theory of weak localization/antilocalization. The results will also be discussed in light of recent theoretical studies of the proximity effect on the metal side of a metal/Mott insulator interface associated with antiferromagnetism of the Mott insulator [1].

[1]A. Sherman, N. Voropajeva, arXiv: 0904.4314.

[1]Work supported by DoE.

Ko Munakata
Geballe Laboratory for Advanced Materials

Date submitted: 07 Dec 2009 Electronic form version 1.4