Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Correlation of Superfluid Density and T_c Suppression in Superconducting/Ferromagnetic Bilayers MICHAEL HINTON, The Ohio State University, ADAM HAUSER, JEREMY LUCY, JULIA MEYER, FENGYUAN YANG, THOMAS LEMBERGER — We report superfluid density measurements of thin film Nb and ferromagnet (Ni, Py, CoFe) bilayers. Data were taken by mutual inductance measurement using a two-coil technique on samples prepared with UHV sputtering. We present data showing, as the thickness of the ferromagnet increases, T_c and superfluid density are suppressed to a limiting value. The limiting value in T_c and superfluid density depends on the exchange field of the ferromagnet as well as the transparency of the interface. Values for T_c and superfluid density at $T = 0$ K follow reasonably well the theory for bilayers with superconducting layer less than a coherence length thick despite our samples consisting of a superconducting layers more than twice a coherence length.

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Date submitted: 20 Nov 2009 Electronic form version 1.4