Supplementary material for "Meissner screening as a probe for inverse superconductor-ferromagnet proximity effects" by M. G. Flokstra *et al.*

This supplementary material contains additional results obtained on samples using thicker normal metal layers, for both a Cu/Nb and Au/Nb based system. It also contains a direct comparison between the Cu(40nm)/Nb(50nm)/Co(2.4nm) and Nb(90nm)/Co(2.5) samples, which were grown and measured under near identical conditions. While not essential to the understanding or conclusions of the manuscript, specialist readers may find the additional information useful and informative.

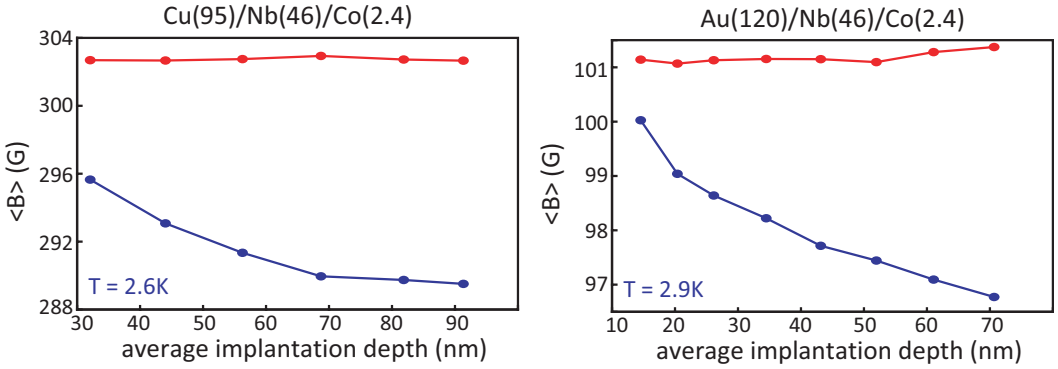

FIG. S1: LE-μSR results showing the average flux as a function of muon penetration depth obtained on a Cu/Nb/Co system (left panel) and Au/Nb/Co (right panel). The full sample layouts are X/Nb(46)/Co(2.4)/Nb(3)/Co(1.2)/Ta(7.5)/Si, with numbers indicating the layer thickness in nm and X either Cu(95) or Au(120). For both samples, flux expulsion is clearly observed down the lowest muon implantation energies used (e.g. lowest implantation depths). The measurement fields were approximately 300 Oe for the Cu sample and 100 Oe for the Au sample. Error bars for $\langle B\left(\langle x\rangle\right)\rangle$ are plotted for all measurements but too small (about 0.05 G) to be seen.

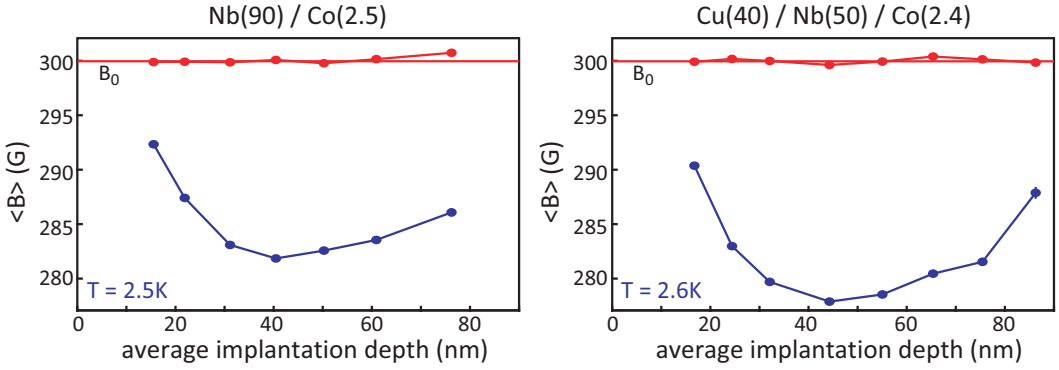

FIG. S2: Comparing the screening efficiency of a Cu/Nb bilayer with a a Nb layer of the same total thickness. Left panel: LE-μSR results showing the average flux as a function of muon penetration depth obtained on a Nb(90)/Co(2.5)/Ta(4.5)/Si sample with numbers indicating the layer thickness in nm. Right panel: similar as the left panel, but for a Cu(40)/Nb(50)/Co(2.4)/Nb(3)/Si sample. The Ta(4.5) and Si(3) are both non-superconducting seed layers to improve growth quality of the adjacent Co layer. Error bars for $\langle B\left(\langle x\rangle\right)\rangle$ are plotted for all measurements but too small (about 0.2 G) to be seen. The effect of small differences in measurement temperature and Co layer thickness are, based on the various sample we have measured and the typical temperature dependence of the flux screening, not playing any dominant role in the observed flux screening of the two samples.