

Supplementary Information

Magnetism at the interface of non-magnetic Cu and C₆₀

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We have performed X-ray reflectivity (XRR) to quantify the interdiffusion of Cu/C₆₀ and C₆₀/Cu. Figure S1 shows the XRR data and its best fit for the sample S2. We have fitted the XRR data using GneX software. From XRR fit we have seen that interdiffusion is present at both the Cu and C₆₀ interfaces. The thickness of the interdiffused layer are 0.58 and 0.53nm for the Cu/C₆₀ and C₆₀/Cu interfaces.

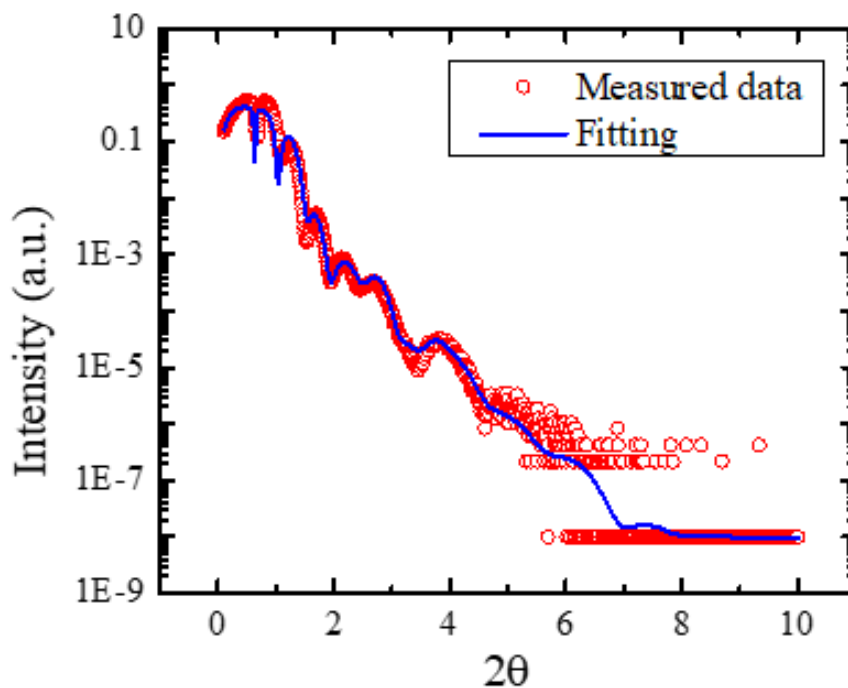


FIG. 1. XRR fit for sample S2. The red open circles are experimental and the blue solid line represents the fitting using GenX software.

Figure S2 (a-c) show the X-ray absorption spectra (XAS) and X-ray magnetic circular dichroism (XMCD) spectra for sample S3 at 6 T, -6 T and 0 T, respectively.

We have performed the sum rule analysis of XMCD data for sample S2 at 6 T. Figure S3 shows the XAS and XMCD spectra and their integration for sample S2. The calculated magnetic moment for Cu is 0.0071 μ_B /atom.

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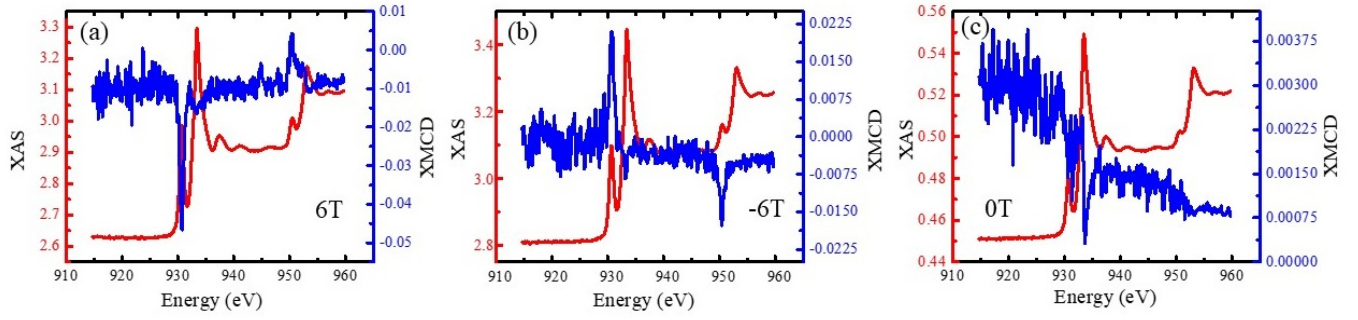


FIG. 2. XAS and XMCD spectra of the sample S3 measured at (a) 6 T, (b) -6 T and (c) 0 T magnetic field at Cu $L_{2,3}$ edges. All the measurements were performed at 1.7 K.

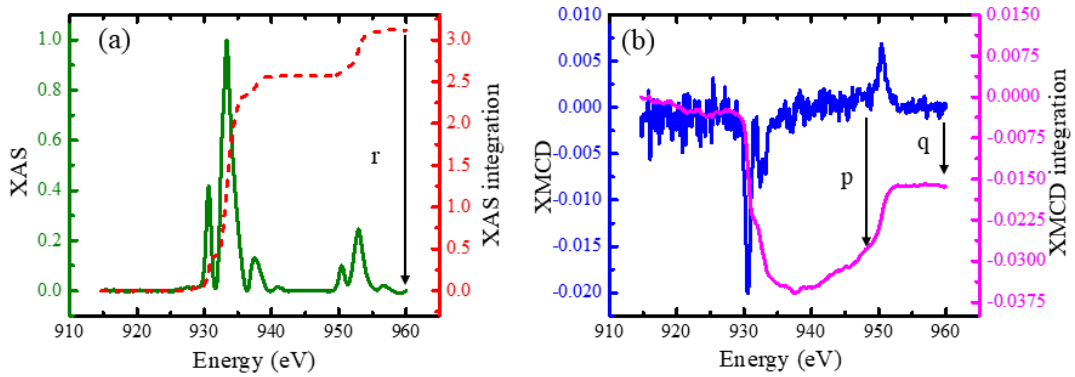


FIG. 3. Cu $L_{2,3}$ XAS (a) and XMCD (b) spectra and their integrations calculated from the spectra are shown for the sample S2 at 6 T. The red dotted line is the integral of the XAS after subtracting two-step-like function from XAS spectra. The green solid line represents the spectra after subtracting a two-step function from XAS spectra. The p, q and r are the three integrals needed in the sum-rule analysis.