

Abstract Submitted  
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**Molecular Kondo Chain**<sup>1</sup> ANDREW DILULLO, Ohio University, SHIH-HSIN CHANG, University of Hamburg, NADJIB BAADJI, Trinity College, Dublin, KENDAL CLARK, Ohio University, JAN-PETER KLOECKNER, MARC-HEINRICH PROSENC, University of Hamburg, STEFANO SANVITO, Trinity College, Dublin, ROLAND WIESENDANGER, University of Hamburg, GERMAR HOFFMANN, National Taiwan University, SAW-WAI HLA, Ohio University — Functional molecular systems, for spin-electronic devices, require careful characterizations of magnetic interactions and intermolecular couplings. We present a scanning tunneling microscopic (STM) study of a surface supported molecular system of coupled cobalt ion centers, formed by a surface catalyzed ring coupling reaction. Binding between individual molecular units is confirmed by vertical and lateral manipulations. Spectroscopy (STS) is used to probe Kondo magnetic interaction. Curve fitting of the Kondo spectroscopic feature is used to extract Kondo temperatures, a measure of the interaction energy, for individual magnetic ion sites. Local point spectroscopy and spectroscopic mapping reveal that the magnetic interactions are localized to the cobalt ion sites, and that chain length influences the interaction strength. Analysis of data as a function of chain length and magnetic ion position is combined with density functional theory (DFT) results to argue for antiferromagnetic (AFM) coupling between magnetic centers.

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