

Abstract Submitted
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Charge transport through single alkanedithiol molecules on an ultrathin insulating film: Influence on an atomic Kondo resonance TAEYOUNG CHOI, JAY GUPTA, ohio state university — Studies of charge/spin transport through single molecules are important for understanding organic-based electronic and memory devices. We have realized a single molecule wire comprising an alkanedithiol molecule and a single Co atom contact using a low temperature scanning tunneling microscope. This wire is formed on an ultrathin insulating layer (Cu₂N on Cu(100)). A Kondo resonance observed on isolated Co atoms on Cu₂N indicates minimal contact to the Cu substrate. However, increased contact to Cu is achieved by connecting the Co atom via the alkanedithiol molecule. A change in the Kondo lineshape on the Co atom indicates an open conduction channel through the molecule. This result provides an opportunity to study charge/spin transport through single molecules with atomically precise contacts. We acknowledge financial support from NSF CAREER Award No. DMR-0645451 and NSF MRSEC-0820414. <http://www.physics.ohio-state.edu/~jgupta>.

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