

Abstract Submitted  
for the MAR13 Meeting of  
The American Physical Society

**Probing superexchange coupling in atomically fabricated d-metal complexes** BENJAMIN BRYANT, ANNA SPINELLI, MARJOLEIN GERRITS, SANDER OTTE, Kavli Institute of Nanoscience, Delft University of Technology — Magnetic coupling between transition metal atoms that are linked through ligand p-orbitals relies on the virtual exchange of electrons between neighboring sites. The characteristics of the resulting superexchange coupling rely on a complex interplay between electron hopping and Coulomb interaction. In this talk I will review recent experiments on individual superexchange coupled d-metal atoms placed inside a covalent surface network. By using low temperature scanning tunneling microscopy, Fe atoms may be positioned in a  $\text{Cu}_2\text{N}$  lattice with atomic precision, and their quantum-magnetic properties probed. Our experiments reveal novel insights into the resulting p-orbital mediated magnetic coupling, that are of importance in the fields of molecular magnetism and strongly correlated transition metal oxides.

Benjamin Bryant  
Kavli Institute of Nanoscience, Delft University of Technology

Date submitted: 16 Nov 2012

Electronic form version 1.4