Manipulating the Spins of Single Molecules

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Modulation of the spin states of single magnetic molecules has been achieved in quantum confined metal thin films. Oscillating Kondo resonances near the Fermi energy as a function of film thickness were observed by a scanning tunneling microscope, and are attributed to formation of quantum well states in the films. I will discuss how to simultaneously use the three functions-manipulation, imaging and spectroscopy of an STM to achieve such measurements. Perspectives of this work in terms of molecular spintronics and chiral catalysis will be discussed.