Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Manipulating Molecular Kondo Effect by Chemical Reactions HOWON KIM, Department of Physics, Korea University, YUNHEE CHANG, Graduate School of Nanoscience and Technology (WCU), KAIST, MIN HUI CHANG, Department of Physics, Korea University, YONG-HYUN KIM, Graduate School of Nanoscience and Technology (WCU), KAIST, SE-JONG KAHNG, Department of Physics, Korea University — Motivated by spintronic applications, the control of Kondo effect arising from spin exchange interaction between isolated spins and conduction electrons of non-magnetic metals, has been explored. A method to control the molecular Kondo effect is demonstrated via chemical reactions. A spontaneous binding between molecules was exploited to control the molecular Kondo effect on Au(111). The Kondo effect was switched back on using local scanning tunneling microscope manipulation. This method relies on the hybridized pairing of unpaired spins two molecules, as supported by our density functional theory calculation results.

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Date submitted: 18 Nov 2011 Electronic form version 1.4