

Abstract Submitted
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Manipulation of Kondo Effect via Two-Dimensional Molecular Self-Assembly VIOLETA IANCU, APARNA DESHPANDE, SAW-WAI HLA, Ohio University — We report manipulation of a Kondo resonance originated from the spin-electron interactions between a two dimensional molecular assembly of TBrPP-Co molecules and a Cu(111) surface at 4.6 K using a low temperature scanning tunneling microscope. By manipulating nearest-neighbor molecules with a scanning tunneling microscope tip we are able to tune the spin-electron coupling of the center molecule inside a small hexagonal molecular assembly in a controlled step-by-step manner. The Kondo temperature increases from 105 to 170 K with a decreasing the number of nearest neighbor molecules from six to zero. This Kondo temperature variation is originated from the scattering of surface electrons by the molecules located at the edges of the molecular layer, which reduces spinelectron coupling strength for the molecules inside the layer. Investigations on different molecular arrangements indicate that the observed Kondo resonance is independent on the molecular lattice. This work is financially supported by US-DOE grant DE-FG02-02ER46012.

Violeta Iancu

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