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Spatial Dependence of Kondo Screening and Magnetic Anisotropy on Saturated Copper Nitride Islands M. REYES CALVO, London Centre for Nanotechnology, UCL, London, UK, JENNY C. OBERG, London Centre for Nanotechology, Dept. of Physics and Astronomy, UCL, London, UK, F. DELGADO, JOAQUIN FERNANDEZ-ROSSIER, International Iberian Nanotechnology Laboratory, Braga, Portugal, CYRUS F. HIRJIBEHEDIN, London Centre for Nanotechnology, Dept. of Physics and Astronomy, Dept. of Chemistry, UCL, London, UK — Co adatoms on a copper nitride surface constitute a unique system for studying the interplay between Kondo physics and anisotropy in a high spin atom (S=3/2). By using scanning tunneling spectroscopy techniques, we can determine both the energy scales of the Kondo screening and the spin excitations on a single atom. Here we study the case of Co adatoms on large nitride islands that form as the copper surface is saturated with nitrogen. These islands present a rich spatial variation of their electronic structure. We observe how changes in the electronic structure of the insulator result in dramatic changes in the spectroscopy of the cobalt adatoms: a considerable increase of the anisotropy energy occurs as the Kondo resonance disappears. These results allow us to explore in detail the interplay between these two phenomena.

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