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Kondo Effect in a Co-Porphyrin on Au(111) probed by Scanning Tunneling Spectroscopy SE-JONG KAHNG, HOWON KIM, WON JUN JANG, JUNG HEUM JEON, Korea University, WON-JOON SON, SEUNGWU HAN, Ewha Womans University — Kondo effect is a core topic in condensed matter physics, exhibiting a localized state raised by the interaction between a single magnetic impurity and Fermi electrons in metals. We have studied Kondo effect in a Co-porphyrin on Au(111) using low-temperature scanning tunneling spectroscopy. A localized state is observed at Fermi level from the spectra measured above the Co atom. The spectra were fitted by Fano line shape, revealing the Kondo temperature of the system $\sim$ 400K. By taking spectra at points along some symmetry directions, decaying behavior of the Kondo effect could be analyzed. With the help of simulated d-electron orbital, the observed decaying behavior is accounted for. Our study implies that lattice reconstruction in a system can induce d-electron orbital distortion, resulting in magnetic asymmetries.

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