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Competition between spin coupling and a magnetic field in the Kondo effect A.F. OTTE, CNST, NIST, Gaithersburg, MD / Maryland NanoCenter, UMD, College Park, MD, M. TERNES, Max Planck Institute fuer Festkoerperforschung, Stuttgart, Germany, C.F. HIRJIBEHEDIN, London Centre for Nanotechnology, UCL, London, UK, S. LOTH, C.P. LUTZ, A.J. HEINRICH, IBM Research Division, Almaden Research Center, San Jose, CA — Experiments in various systems have shown that the resonance of the Kondo effect, an intriguing many-body phenomenon, can be split by an external magnetic field. Here we show that coupling a single magnetic atom to a Kondo system can have the same result. We use a low temperature scanning tunneling microscope to study an Fe atom coupled to a Kondo-screened Co atom, bound on a thin insulating Cu_2N layer. Scanning tunneling spectroscopy measurements at zero magnetic field show the Kondo peak to be split due to the presence of the Fe atom, which couples antiferromagnetically to the Co atom. An externally applied magnetic field of appropriate magnitude can compensate the effect of the spin coupling and reconstitute the peak. These experiments provide a unique way to understand the interplay between Kondo physics, exchange coupling and magneto- crystalline anisotropy.

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