

Abstract Submitted
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Tuning the ground state of the Kondo lattice in $UTBi_2$ ($T = Ag, Au$) single crystals PRISCILA ROSA, University of California, Irvine, YONGKANG LUO, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA, PASCOAL PAGLIUSO, University of Campinas, ERIC BAUER, JOE THOMPSON, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA, ZACHARY FISK, University of California, Irvine — Motivated by the interesting magnetic anisotropy found in the Ce-based heavy fermion family $CeTX_2$ ($T =$ transition metal, $X =$ pnictogen), here we study the novel U-based parent compounds $UTBi_2$ ($T = Ag, Au$) by combining magnetization, electrical resistivity, and heat-capacity measurements. The single crystals, synthesized by the self-flux method, also crystallize in the tetragonal $HfCuSi_2$ -type structure (space group $P4/nmm$). Interestingly, although $UAgBi_2$ is a low- γ antiferromagnet below $T_N = 181$ K, $UAuBi_2$ is a moderately heavy uniaxial ferromagnet below $T_c = 22$ K. Nevertheless, both compounds display the easy-magnetization direction along the c -axis and a large magnetocrystalline anisotropy. Our results point out to an incoherent Kondo behaviour in the paramagnetic state and an intricate competition between crystal field effects and two anisotropic exchange interactions, which lead to the remarkable difference in the observed ground states.

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