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Low temperature specific heat of frustrated antiferromagnet $HoInCu_4$[1] FRANZISKA WEICKERT, Los Alamos National Laboratory, VERONIKA FRITSCH, Karlsruhe Institute of Technology, RYAN BAMBAUGH, JOHN SARRAO, JOE D. THOMPSON, ROMAN MOVSHOVICH, Los Alamos National Laboratory — We present low temperature specific heat measurements of single crystal $HoInCu_4$, down to 35 mK and in magnetic field up to 12 Tesla. Ho atoms are arranged in an FCC lattice of the edge-sharing tetrahedra, and undergo an antiferromagnetic ordering at T_N =0.76 K, with the frustration parameter $f = -\Theta_{\rm CW}/{\rm T_N}$ of 14.3 [1]. Magnetic AF order is suppressed in field $H_0 \approx 4$ T. The low temperature Schottky anomaly due to Ho evolves smoothly as a function of field through H_0 and T_N. The peak value of the anomaly remains roughly constant from 0 T to 12 T. The temperature of the anomaly's peak remains constant at $T_{Sch} \approx$ 170 mK for $H<H_0$, and gradually increases above H_0 up to 300 mK at 12 T. This indicates a complete ordering of Ho spins in zero field as well as an increasing moment on Ho once the AF order is suppressed. The measured entropy of $HoInCu_4$ at 12 T and 2K is 17.32 J/mol-K $\approx$ Rln8 expected for an I=7/2 nuclear spin of Ho.

[1] V. Fritsch, J. D. Thompson, and J. L. Sarrao, "Spin and orbital frustration in RInCu4 (R =Gd, Dy, Ho, and Er)", PRB **71**, 132401 (2005).

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