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 $f = -\Theta_{CW}/T_N$ 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 $\approx R \ln 8$ expected for an I=7/2 nuclear spin of Ho.

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