Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Specific heat of tri-glycine sulfate in electric field JASON LASHLEY, N. HUR, MIKE HUNDLEY, W. HULTS, JASON COOLEY, BOGDAN MIHAILA, JAMES SMITH, Los Alamos National Laboratory, TREVOR FINLAYSON, Monash University, CYRIL OPEIL, Boston College, ROBERT FISHER, Lawrence Berkeley National Laboratory — Measurements of the specific heat, polarization and dielectric constant are reported in electric fields up to 3 kV/cm in order to investigate domain energetics in the hydrogen-bonded ferroelectric tri-glycine sulfate. Although the shape of the specific-heat anomaly at $T_C = 322.5\,K$ is thermally broadened in unpoled crystals, this shape changes into the characteristic λ-shape expected for a continuous transition with the application of a 220 V/cm electric field. The λ transition below T_C depends on $T - T_C$ in a range $T - T_c \leq$ 10 K with a critical exponent, $\beta =$ - 0.39. Similarly we find that below T_C the experimental dielectric constant obeys an inverse-power law of the form, $\varepsilon(T) = a/(T - T_C)^{\beta}$, with the constant $a = 1244\,\mathrm{K}$ and the exponent $\beta = 0.4$.

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Date submitted: 06 Nov 2006 Electronic form version 1.4