Supplemental Information: Synthesis and Anisotropic Magnetic Properties of $LiCrTe_2$ Single Crystals with a Triangular-Lattice Antiferromagnetic Structure

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I. DETERMINATION OF THE NEEL TEMPERATURE

The Néel temperature was determined with the help of the first derivative as depicted in figure 1 for the in plane (a) and out-of-plane (b) measurement.

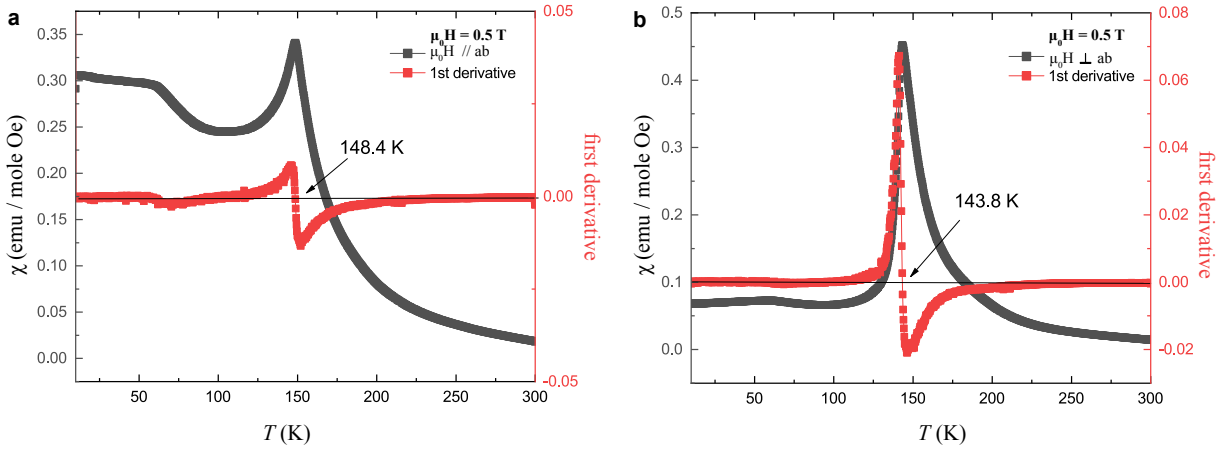

FIG. 1. Determination of the T_N for the in plane and out of plane measurement.

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II. INVERSE OF THE MAGNETIC SUSCEPTIBILITY

A tentative fit of the inverse of the magnetic susceptibility shows a positive Curie-Weiss temperature of $\theta_{CW} = 160$ K for in plane and $\theta_{CW} = 168$ K for out-of-plane measurements.

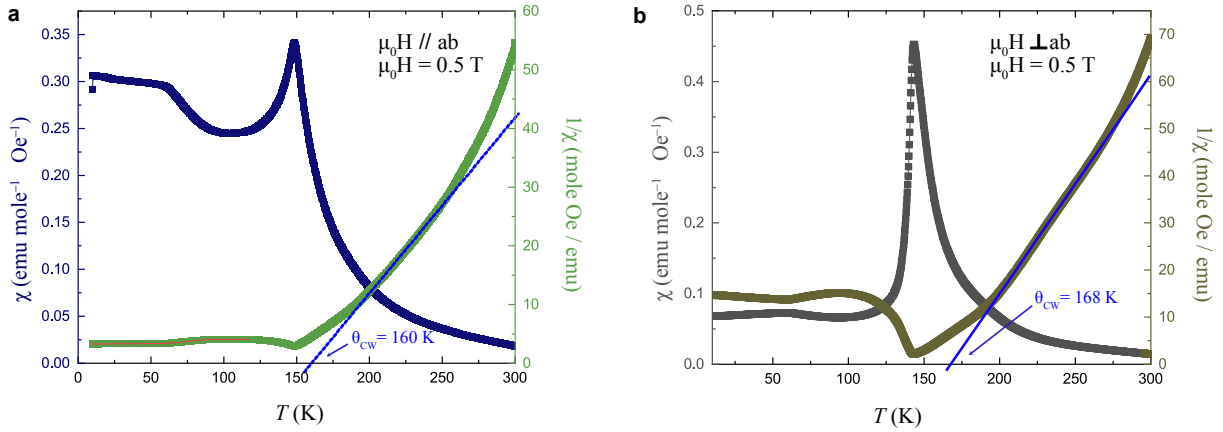

FIG. 2. A tentative fit shows a Curie Weiss Temperature of $\theta_{CW} \approx 160$ K

III. PHASEDIAGRAM BOUNDARIES

In order to determine the ferromagnetic (FM) boundaries on the phase diagram, we used the first derivative of the magnetic response to field and took its lowest point. In figure 3 (a) we show the procedure for an external field of 3.5 T. The metamagnetic (MM) transitions were taken from the deviations from linearity observed in the first derivative of the M(H) data, see figure 3 (b) for the temperature of 100 K.

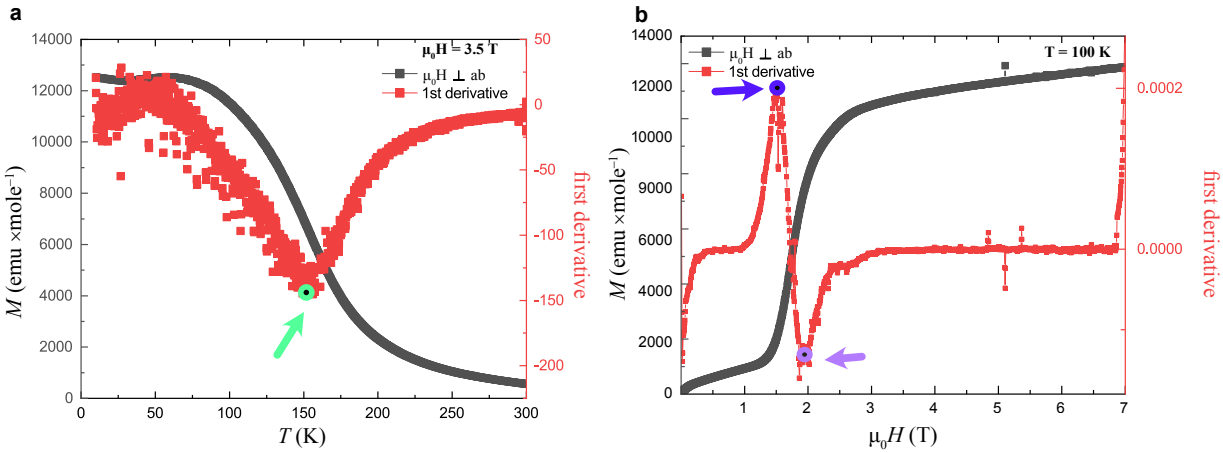

FIG. 3. Illustration of the procedure for the determination of the FM and MM boundaries in the phase diagram.