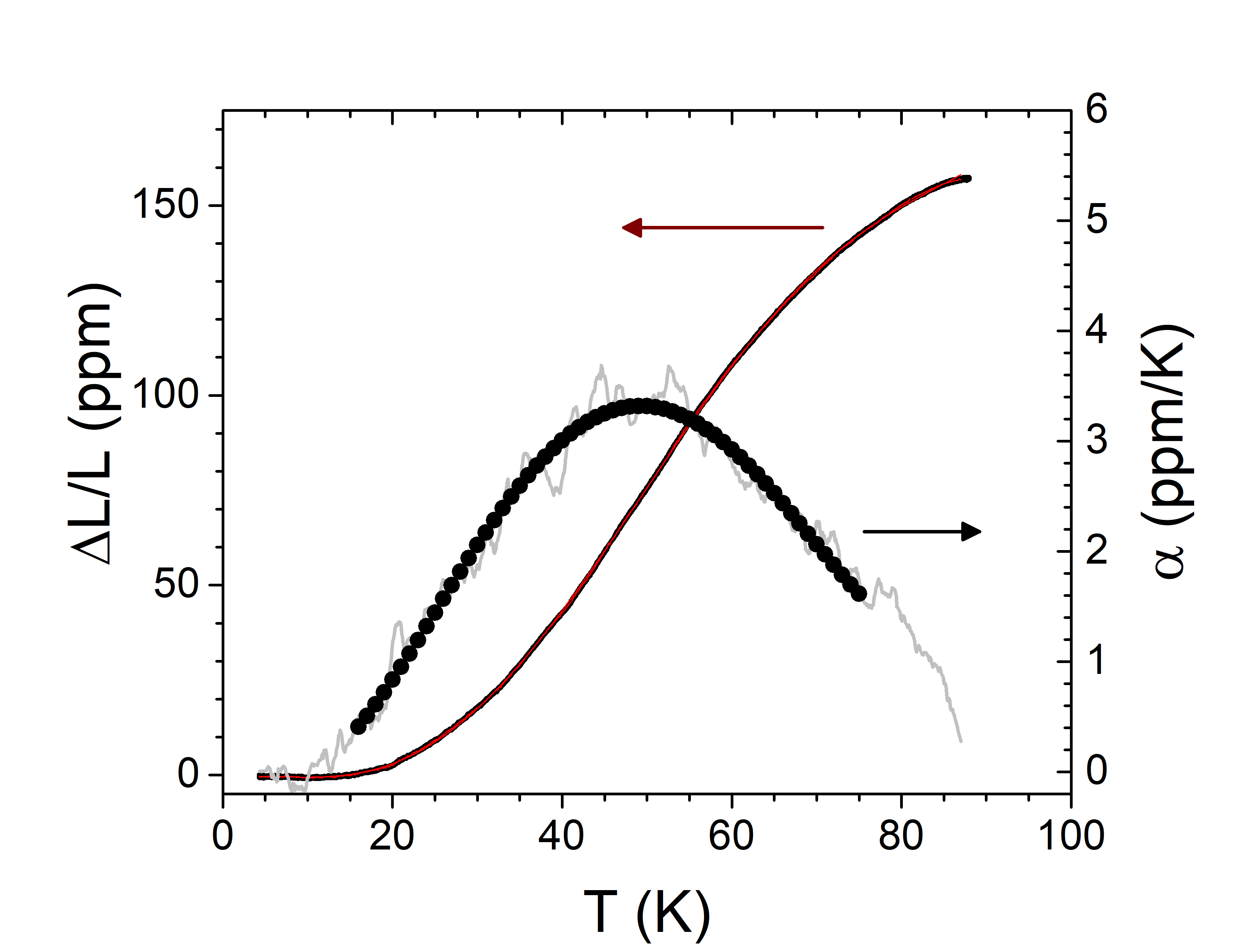
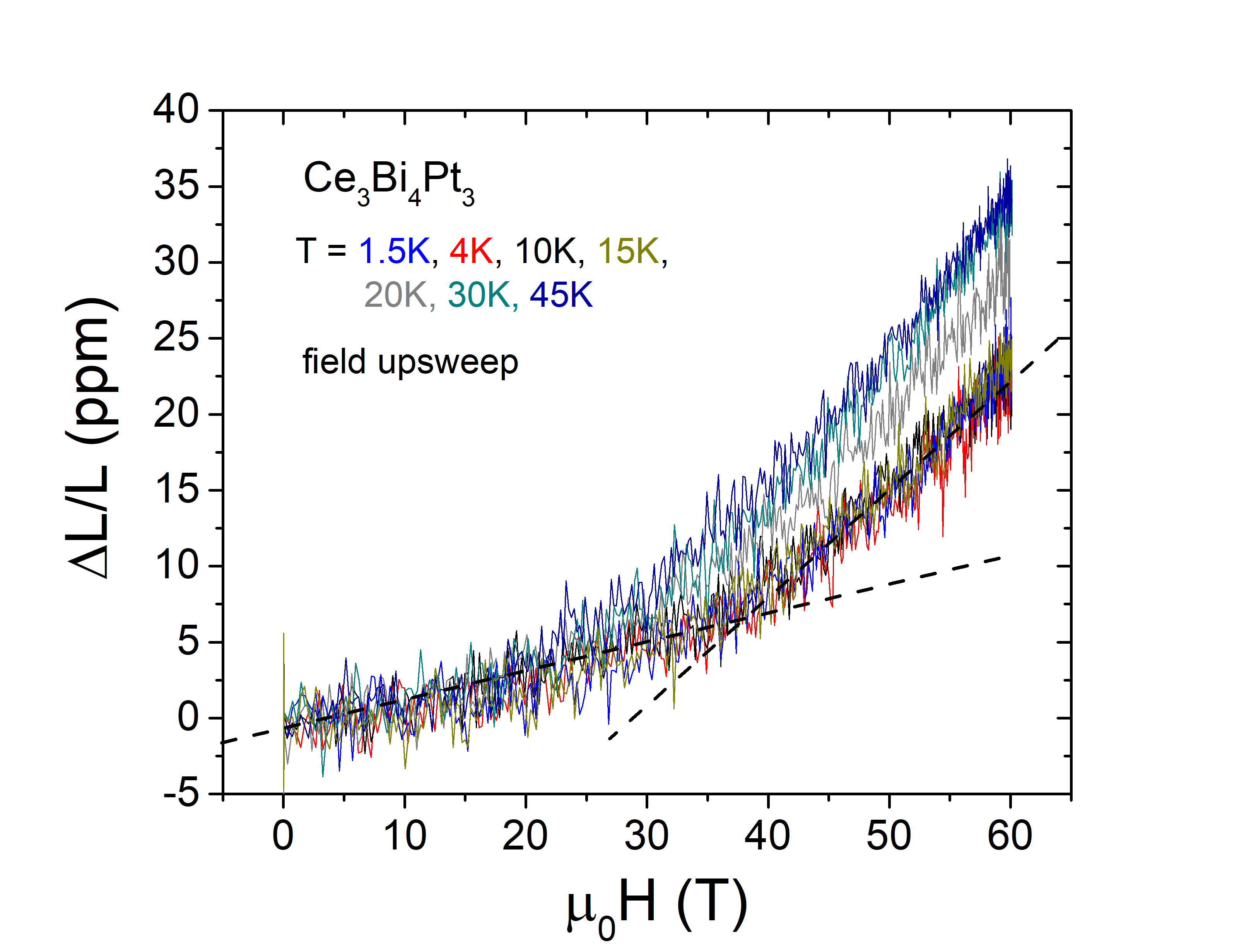
**Magnetoelastic signatures for a bulk gap in Ce3Bi4Pt3 Kondo insulator**

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**Introduction**

Previous experimental studies have suggested that the Kondo gap in highly correlated compounds such as Ce3Bi4Pt3 [1], YbB12 [2], and SmB6 [3] can be closed and bulk metallic behavior recovered at high magnetic fields. Similar behavior was therefore expected for Kondo insulators theoretically predicted to be topological insulators. The results of specific heat and transport measurements carried out at high magnetic fields, however, are still subject to debate. Although in the case of Ce3Bi4Pt3 an increase in the Sommerfeld coefficient at 35-40T has been identified as likely due to the closing of the charge gap, surprisingly no signature of such closure has been observed in the magnetization M(H). Here we tackle the issue with magnetostriction measured to 60T in a Ce3Bi4Pt3 crystal.

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**Figure 1 (left panel) The thermal expansion L/L vs. T and the coefficient of thermal expansion (T) for Ce3Bi4Pt3 in zero magnetic field. (right panel) The magnetostriction L/L vs H measured at various constant temperatures indicated in the label. The curves taken at the lowest temperatures T = 1.5K, 4.0K and 10K show an apparent kink at HK ≈ 37K. Only field upsweep is shown, as the feature is washed out and less clear in the downsweep.**

**Experimental**

Magnetostriction measurements in pulsed magnetic fields up to 60 T were carried out using an optical FBG technique running at 50 kHz. [4]

**Results and Discussion**

Figure 1 (left) shows the thermal expansion of the sample at cryogenic temperatures. The coefficient of thermal expansion displays a broad maximum at 45K, in agreement with specific heat C/T(T) measurements [1]. The magnetostriction curves obtained at temperatures 1.5K ≤ T ≤ 45K show a moderate expansion of the sample, as expected for the closure of the spin gap, and an abrupt change of slope at HK ≈ 37K that agrees well with the fields at which a change in the Sommerfeld coefficient was previously reported [1]. In summary, our preliminary results are consistent with a bulk Kondo gap that can be closed with an applied magnetic field between 30T and 40T. Additional dilatometry experiments in DC magnetic fields are required to confirm our findings.

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