

## $\mu$ SR investigation of ferromagnetic CeIn<sub>2</sub>

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CeIn<sub>2</sub> is a pure ferromagnet below 22 K one of the highest ordering temperatures in ferromagnetic Kondo lattices. Macroscopic measurements [D. P. Rojas et al., Physical Review B 80 (2009) 184413] suggested that the magnetic transition in CeIn<sub>2</sub> is of first order.

We report the results of our  $\mu$ SR experiments on CeIn<sub>2</sub>, performed at ambient pressure and under applied pressure. From the temperature dependence of the internal field at the muon site we confirm that the transition at 22 K is of first order. Our results also suggest the existence of a precursor magnetic phase above the first order ferromagnetic transition. Both the ferromagnetic transition temperature and the local field at the muon site (measured at 2 K) are increased by the external applied pressure. However, the shape of the temperature dependence of the local field at the muon site is drastically influenced by the increase of the pressure.

The results of our  $\mu$ SR experiments performed at temperatures above the magnetic ordering temperature, in zero and longitudinal magnetic field configurations, are also discussed.

13.4 cm

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9.7 cm