

Abstract Submitted
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Magnetism in CeRhIn₅ at high fields measured by NMR¹ A. M. MOUNCE, F. RONNING, E. D. BAUER, J. D. THOMPSON, Los Alamos National Laboratory, A. P. REYES, P. L. KUHNS, National High Magnetic Field Laboratory, Tallahassee, FL — De Haas-van Alphen measurements[1] of CeRhIn₅ at ambient pressure show an abrupt change in the Fermi surface volume at high fields, $H^* \approx 30$ T, and low temperatures resulting in antiferromagnetic phases with a small Fermi surface at fields below H^* and a large Fermi surface at fields H such that $H^* < H < 50$ T. Nuclear magnetic resonance (NMR) is the ideal probe for these magnetic states as the microscopic details are still lacking. Our preliminary NMR measurements find the magnetic order for $H \parallel c$ is incommensurate up to 30 T as opposed to $H \perp c$ which transitions from incommensurate to commensurate at $H \approx 2$ T.[2] Furthermore, we find that the magnetic moment decreases near 17 T for $H \parallel c$. These measurements provide an insight into the magnetic anisotropy of CeRhIn₅ and are a crucial step to studying its high field phases. [1] L. Jiao et al., arXiv 1308.0294. [2] S. Raymond et al., J. Phys. Cond. Matt. 19, 242204 (2007).

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