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Pressure induced quantum phase transitions in Ca2RuO4 PATRICIA LEBRE ALIREZA, ANNE-MARIE CUMBERLIDGE, GILBERT LONZARICH, University of Cambridge, England, STEPHEN JULIAN, University of Toronto, FUMIHIKO NAKAMURA, Hiroshima University, YOSHITERU MAENO, University of Kyoto — $Ca_2RuO_4$is a member of the family of ruthenates, which are strongly correlated systems that exhibit a wide range of interesting phenomena including metal-insulator transitions, orbital and magnetic ordering and unconventional superconductivity. Using a novel setup in a miniature anvil cell, we have been able to measure magnetic susceptibility under high hydrostatic pressure and have followed the transitions of Ca_2RuO_4 from an antiferromagnetic Mott insulator to a ferromagnetic metal. Additionally, we have investigated the evolution of this ferromagnetically ordered state as the pressure is increased, successfully suppressing this transition towards a quantum critical point.

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