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Richard L. Greene Dissertation Award in Experimental Condensed Matter or Materials Physics Talk: Ferromagnetic quantum criticality in YbNi4P2

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In a number of strongly correlated electron systems quantum phase transitions can be observed by the suppression of antiferromagnetic order. In contrast the prototypical continuous quantum phase transition of a metallic ferromagnet is often preempted by a first-order transition or a superconducting state. We show that the Kondo lattice system YbNi4P2 exhibits a ferromagnetically ordered phase with a very low Curie temperature of 0.15K. The compound can be tuned to a ferromagnetic quantum critical point by substitution of phosphorus by arsenic. With thermodynamic studies of specific heat, ac susceptibility and thermal expansion we show strong evidence for the ferromagnetic order and the quantum criticality in the YbNi4(P 1-x As x)2 doping series and the existence of a ferromagnetic quantum critical point at zero applied field for small substitutions.