

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Low Temperature Properties and Quantum Criticality of CrAs_{1-x}P_x single crystal. JIANLIN LUO, Institute of Physics, Chinese Academy of Sciences, INSTITUTE OF PHYSICS, CHINESE ACADEMY OF SCIENCES TEAM — We report a systematically study of resistivity and specific heat on phosphorus doped CrAs_{1-x}P_x single crystals with x=0 to 0.2. With the increasing of phosphorus doping concentration x, the magnetic and structural transition temperature T_N is suppressed. Non-fermi liquid behavior and quantum criticality phenomenon are observed from low temperature resistivity around critical doping with $x_c \sim 0.05$ where the long-range antiferromagnetic ordering is completely suppressed. The low temperature specific heat of CrAs_{1-x}P_x is contributed by the thermal excitation of phonons and electrons. The electronic specific heat coefficient γ , which reflects the effective mass of quasi-particles, shows maximum around $x_c \sim 0.05$, also indicating the existence of quantum critical phenomenon around the critical doping. The value of Kadowaki-Woods ratio of CrAs_{1-x}P_x shows no significant different from that of CrAs. Work is done in collaboration with Fukun Lin, Wei Wu, Ping Zheng, Guozhi Fan, Jinguang Cheng.

Jianlin Luo
Institute of Physics, Chinese Academy of Sciences

Date submitted: 05 Nov 2015

Electronic form version 1.4