Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Physical Properties of $CaFe_4As_3$ Single Crystals AMAR KARKI, YIMIN XIONG, JIANNENG LI, SHANE STADLER, GREGORY MCCANDLESS, JULIA CHAN, RONGYING JIN, Louisiana State University — New compound $CaFe_4As_3$ crystallizes in an orthorhombic structure with Fe_2As_2 layers aligned along b direction but a rectangular cross-section in ac plane. The needle-shaped $CaFe_4As_3$ single crystals were grown and are found to undergo two successive phase transitions occurring at $T_1 \sim 90$ K and $T_2 \sim 27$ K, respectively. At T_1 the electrical resistivity increases and magnetic susceptibility decreases in both parallel and perpendicular to b directions consistent with the scenario of spin-density-wave formation. At T_2, resistivity decreases sharply at T_2 with hysteresis while magnetic susceptibility increases along either b direction or ac plane. The underlying physics will be discussed by taking into account other physical properties.

Amar Karki
Louisiana State University

Date submitted: 15 Nov 2010 Electronic form version 1.4