

Abstract Submitted
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Pressure Effect on the Structural and Magnetic Transition in CaFe_2As_2 SHILIANG LI, University of Tennessee, YING CHEN, NIST Center for Neutron Research, University of Maryland, JEFFREY LYNN, NIST Center for Neutron Research, XIANHUI CHEN, University of Science and Technology, PENGCHENG DAI, University of Tennessee, Oak Ridge National Laboratory — We use neutron scattering technique to study both the structural and magnetic phase transitions of CaFe_2As_2 . We confirmed that the nuclear structure changes from orthorhombic to collapsed tetragonal phase with increasing pressure at low temperatures. Strong hysteresis is found in increasing and decreasing temperature processes. The c-axis lattice constant of the orthorhombic phase is found to increase with decreasing temperature under pressure while that of the collapsed tetragonal phase shows almost no change, which suggests a strong magnetic-lattice coupling.

Shiliang Li
University of Tennessee

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