

Abstract Submitted
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Jahn-Teller Effect, Structural Phase Transition and Resistivity Anomaly in Iron Pnictides WEICHENG LV, JIANSHENG WU, PHILIP PHILLIPS, University of Illinois — We attribute the structural phase transition (SPT) in the parent compounds of iron pnictides to a Jahn-Teller distortion. Due to the anisotropy of the d_{xz} and d_{yz} orbitals in the xy plane, some orbital ordering will make the orthorhombic structure more energetically favorable, thus inducing the SPT. In an orbital ordered system, the sites with orbitals that do not order act as scattering impurities, causing a resistivity anomaly upon the onset of the SPT. Below the SPT, we find that the resistivity displays a $\ln T$ divergence. All of these are in agreement with the experiments.

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