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High-Temperature Electrical and Magnetic Properties of Undoped Iron Pnicties JIANNENG LI, Louisiana State University, Y. XIONG, Y. YANG, R. JIN, LSU, T. QI, G. CAO, UK, J.R. THOMPSON, ORNL/UT, H. WANG, B.C. SALES, A.S. SEFAT, M.A. MCGUIRE, ORNL, V. KEPPENS, UT, D. MANDRUS, ORNL — We have investigated the electrical and magnetic properties of several parent compounds of Fe-based superconductors in a wide temperature range. In addition to the well-known transitions (one structural transition at T_s and one spin-density-wave (SDW) transition at T_M), all investigated parent compounds ($BaFe_2As_2$,$SrFe_2As_2$, LaFeAsO, FeTe) show unusual features in both magnetic susceptibility and electrical resistivity at high temperatures (T). Above T_s, their magnetic susceptibility increases more or less linearly with increasing temperature up to at least 700 K. On the other hand, the electrical resistivity exhibits non-monotonic temperature dependence, revealing non-metallic character at high temperatures. The implication of these results will be discussed.

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