

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Theory of disorder-limited transport anisotropy in Fe-based superconductors¹ PETER HIRSCHFELD, Department of Physics, University of Florida, Gainesville, FL 32611, YAN WANG, HI875049, INDRANIL PAUL, University of Paris VII (Diderot) — The unusual temperature dependence of the resistivity and its in-plane anisotropy observed in the Fe-based superconducting materials, particularly BaFe₂As₂, has been a longstanding puzzle. Here we construct a crude phenomenological model of the scattering of electrons from dopant induced nematic impurity states which explains many qualitative features of these experiments. Within this model, the high-temperature transport anisotropy near the magnetic and structural transitions is due almost entirely to the disordered nematogens, while below T_N . Fermi surface reconstruction competes with this effect.

¹Research supported by NSF-DMR-1005625

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Date submitted: 15 Nov 2013

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