

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Quasiparticle self-energy in Fe-based superconductors¹ MAXIM KORSHUNOV, ALEX KEMPER, PETER HIRSCHFELD, Department of Physics, University of Florida, Gainesville, Florida 32611, USA — Novel iron-based superconductors with T_c up to 55K present several challenges to the condensed matter community, including the question of electronic pairing in a multiband system consisting of nearly compensated electron and hole pockets. One unusual feature of these systems is that the quasiparticle scattering rates on hole and electron Fermi surface pockets are quite different [1,2]. We have calculated the scattering rate on different Fermi surface sheets within the framework of generalized spin-fluctuation theory with local interactions. The self-energy was approximated via the second-order diagrams with the effective interaction in the random phase approximation. We compare our results to recent experiments on the Fe-pnictide materials. [1]. B. Muschler *et al.*, arXiv:0910.0898. [2]. L. Fang *et al.*, Phys. Rev. B 80, 140508 (2009).

¹Partial support was provided by DOE DE-FG02-05ER46236 (PJH)

Maxim Korshunov
Department of Physics, University of Florida, Gainesville, Florida 32611, USA

Date submitted: 19 Nov 2009

Electronic form version 1.4