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Near degeneracy of several pairing channels in a multi-orbital model for the Fe-pnictides THOMAS MAIER, Oak Ridge National Laboratory, SIEGFRIED GRASER, PETER HIRSCHFELD, University of Florida, DOUGLAS SCALAPINO, University of California, Santa Barbara — The experimental evidence regarding the gap structure in different iron pnictide superconductors is currently conflicting. In addition, weak-coupling approaches to the pairing problem in multi-orbital models of the iron pnictides have predicted a wide variety of superconducting ground states. We argue here that this controversy is naturally explained by the near-degeneracy of different pairing channels in superconductors with many distinct Fermi surface sheets. In particular, we will present results for the spin susceptibility and the pairing symmetry within a five-band random phase approximation model. We will discuss the robustness of these results for different dopings, interaction strengths, and variations in the band structure, in the light of recent experiments.

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