

Abstract Submitted  
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**Superconductivity in the Fe-Pnictides - From first principle calculations to effective RG studies** CHRISTIAN PLATT, University of Wuerzburg, RONNY THOMALE, ANDREI BERNEVIG, Princeton University, CARSTEN HONERKAMP, RWTH Aachen, WERNER HANKE, University of Wuerzburg — The functional Renormalization Group (fRG) is used to determine the superconducting (SC) mechanism in the ferropnictides, with the main emphasis on distinguishing universal and material-specific aspects. To this end we use a five-band d-orbital whose interactions, in contrast to earlier fRG studies, are not taken as scalar model parameters, but calculated “a priori” from constrained RPA calculations. We universally find a SC pairing instability, driven by inter-Fermi surface (FS) scattering and resulting in a sign-changing s $\pm$  wave order parameter. However, the gap anisotropy is shown to be dependent on material-specific orbital parameter deviations not only by the “non-interacting” (i.e. LDA) part of the d-orbital Hamiltonian, but also by self-energy corrections.

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