

Abstract Submitted
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Pairing Operators in Multiorbital Systems¹ ANDREW NICHOLSON, ADRIANA MOREO, ELBIO DAGOTTO, University of Tennessee and ORNL, MARIA DAGHOFER, IFW Dresden — The discovery of high- T_c superconductivity in the pnictides highlights the need to understand how superconductivity arises in multiorbital systems. In a simple two orbital model we discuss how strong hybridization between orbitals may lead to both intra and interband pairing [1]. Next a three orbital model for the pnictides is considered where hybridization between the As p orbitals and three of the Fe $3d$ orbitals is described via the Slater-Koster approach [2]. Spin-singlet pairing operators allowed by lattice and orbital symmetries are constructed and indexed. It is found that the only fully gapped and purely intraband spin-singlet pairing operator arises if the electrons in different orbitals couple with equal strength to the source of pairing. Other pairing operators are discussed as well, including S_{\pm} . Spectral functions are calculated in both investigations to guide experimental work.

[1] A. Moreo *et al.*, Phys. Rev. **B80**, 104507 (2009).

[2] M. Daghofer *et al.*, arXiv:0910.1573v1.

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