

Abstract Submitted  
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**Pairing Operators in Multiorbital Systems**<sup>1</sup> 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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