

Abstract Submitted
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A Functional Renormalization Group Study of Hund's Rule Coupling in Multi-band Hubbard Models NAHOM YIRGA, DAVID CAMPBELL, Boston University — Two-band Hubbard models are the simplest systems that capture the interplay between magnetism and superconductivity, as seen in many of the Pnictides [1]. They have also been crucial in understanding the material dependence of the critical temperature in the Cuprates [2]. We consider the role of Hund's Rule coupling in a generalized two-band Hubbard Hamiltonian within the framework of the Functional Renormalization Group. We derive the phase diagram for the model and discuss the effects of a strong Hund's Rule coupling on the predicted critical temperature. Finally, to fully address the interplay between the bands and interactions in the Pnictides and the Cuprates, we expand our model to include the effects of bands away from the Fermi surface. [1] Masahisa Tsuchiizu, Yusuke Ohno, Seichiro Onari, and Hiroshi Kon-tani. Orbital nematic instability in the two-orbital hubbard model: Renormalization-group + constrained rpa analysis. *Phys. Rev. Lett.*, 111:057003, Jul 2013. [2] Hirofumi Sakakibara, Hidetomo Usui, Kazuhiko Kuroki, Ryotaro Arita, and Hideo Aoki. Origin of the material dependence of t_c in the single-layered cuprates. *Physical Review B*, 85(6):064501, 2012.

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