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Band structure effects on superconductivity in the weak-coupling Hubbard model WEEJEE CHO, SRINIVAS RAGHU, STEVEN KIVELSON, Stanford University — The repulsive Hubbard model is the paradigmatic model for the study of unconventional superconductivity. In order to explore the influence of various features of the band structure on the magnitude and character of the pairing, we use a well-controlled perturbative renormalization group (RG) method to study the weak coupling limit of the model on the square lattice with various modifications: The first is the checkerboard model described by the strong hopping t and the weak hopping t' . The second is the bilayer model described by the intra-layer hopping t and the inter-layer hopping t_{\perp} . We obtain the pairing symmetry and strength as functions of the relevant band parameters. Large changes in the effective pairing strength are found and their origins explained.

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