

Abstract Submitted
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Effects of disorder in the Checkerboard Hubbard model PETER SMITH, MALCOLM P. KENNETT, Simon Fraser University — The checkerboard Hubbard model (CHM) is an unusual example of a model for strongly correlated electrons that has a region in parameter space where a controlled perturbative solution is possible. The square lattice in two dimensions is divided into four-site plaquettes for which the intra-plaquette hopping (t) is stronger than the inter-plaquette hopping (t'). We study the ground state properties of the CHM in the presence of disorder using exact diagonalization on clusters of up to twelve sites as a function of t'/t , disorder strength and interaction strength. We consider both site and bond disorder and calculate the pair binding energy and the spin gap. We comment on the implications of our results for superconductivity in this model.

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