

Abstract Submitted
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Spin susceptibility representation of the pairing interaction for the two-dimensional Hubbard model¹ THOMAS MAIER, Oak Ridge National Laboratory, MARK JARRELL, University of Cincinnati, DOUGLAS SCALAPINO, University of California, Santa Barbara — We will discuss recent dynamic cluster quantum Monte Carlo studies of the effective pairing interaction responsible for d-wave pairing in the doped two-dimensional Hubbard model with an on-site Coulomb interaction U equal to the bandwidth. Motivated by earlier studies that show that the dominant contribution to the pairing interaction comes from the spin $S=1$ channel, we study a simple spin susceptibility representation of the particle-particle irreducible vertex. We find that with an effective temperature dependent coupling $\bar{U}(T)$ and the numerically calculated spin susceptibility $\chi(K - K')$, the d-wave pairing interaction is well approximated by $\frac{3}{2}\bar{U}^2(T)\chi(K - K')$.

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