

Abstract Submitted
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The 2D Hubbard Model: Diagrammatic Extensions from Two-Particle Vertex Functions JAMES LEBLANC, EMANUEL GULL, Univ of Michigan - Ann Arbor — There are now a number of approaches to computing self energies at finite temperatures in the 2D Hubbard model. The dynamical mean field theory, and finite cluster extensions such as the dynamical cluster approximation (DCA), has typically provided an excellent image of local properties of correlated systems. However, towards low temperatures finite size effects occur due to the neglect of non-local correlations beyond the length scale of the impurity cluster. We explore one proposal to mitigate this effect by simulating on the two-particle level. By computing the full and two-particle irreducible vertex functions from DCA we present a first quantitative description on the reliability of this approach and compare against existing large cluster DCA results.

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