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**“Glue” approximation for the pairing interaction in the Hubbard model with next nearest neighbor hopping** EHSAN KHATAMI, ALEXANDRU MACRIDIN, MARK JARRELL, University of Cincinnati — Recently, several authors have employed the “glue” approximation for the Cuprates in which the full pairing vertex is approximated by the spin susceptibility. We study this approximation using Quantum Monte Carlo Dynamical Cluster Approximation methods on a 2D Hubbard model. By considering a reasonable finite value for the next nearest neighbor hopping, we find that this “glue” approximation, in the current form, does not capture the correct pairing symmetry. Here, d-wave is not the leading pairing symmetry while it is the dominant symmetry using the “exact” QMC results. We argue that the sensitivity of this approximation to the band structure changes leads to this inconsistency and that this form of interaction may not be the appropriate description of the pairing mechanism in Cuprates. We suggest improvements to this approximation which help to capture the essential features of the QMC data.

Prefer Oral Session  
 Prefer Poster Session

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