

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Sorting Category: 05.2 (C)

Pairing glue in the Hubbard and t-J models: Insights from a dynamic cluster approximation study THOMAS MAIER, Oak Ridge National Laboratory, DOUGLAS SCALAPINO, University of California, Santa Barbara, MARK JARRELL, University of Cincinnati — We will discuss dynamic cluster non-crossing approximation studies of the superconducting gap function $\Phi(k, \omega)$ in the 2D Hubbard and t-J models. The momentum and frequency dependence of the gap reflect the spatial structure and dynamics of the pairing interaction responsible for d-wave pairing. For both models we find that two mechanisms are simultaneously active. An instantaneous contribution to the gap arises from states whose energies reflect the Mott scale and which give rise to the exchange coupling J . The dominant contribution, however, is retarded and comes from energies that correspond to the spin fluctuation spectrum. It is therefore reasonable to speak of a dynamic “pairing glue” which gives rise to d-wave superconductivity in the Hubbard and t-J models.

Prefer Oral Session
 Prefer Poster Session

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Date submitted: 12 Dec 2007

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